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Tien

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(54) **PANIC EXIT DOOR LOCK WITH AN INDICATION OF A LOCKING STATE**

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(22) Filed: **Mar. 10, 2014**

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(51) **Int. Cl.**
E05B 65/10 (2006.01)
E05B 41/00 (2006.01)

(52) **U.S. Cl.**
CPC ***E05B 65/10*** (2013.01); ***E05B 41/00*** (2013.01); ***E05B 65/1053*** (2013.01); *Y10T 70/5159* (2015.04)

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CPC E05B 39/00; E05B 41/00; E05B 63/16; E05B 63/18; E05B 63/185; E05B 63/22; E05B 65/10; E05B 65/1006; E05B 65/102; E05B 65/1046; E05B 65/1053; E05B 65/1086; E05B 65/1093
USPC 70/92, 107–111, 439, 441
See application file for complete search history.

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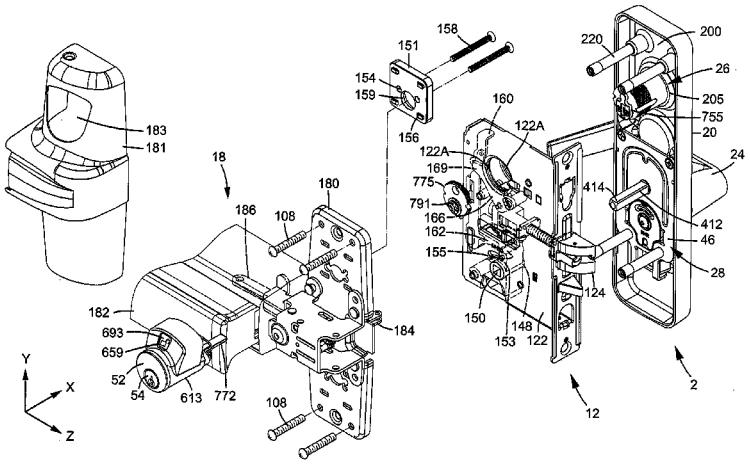
(57) **ABSTRACT**

A panic exit door lock includes an outer operational device mounted to an outer side of a door, an inner operational device mounted to an inner door of the door, a lock mounted in the door, and a locking mechanism mounted between the inner and outer operational devices and the lock. The locking mechanism includes an outer cylinder mounted to the outer operational device and an inner cylinder mounted to the inner operational device. An indicator member is operably connected to the inner cylinder and a setting member. The setting member is connected to a transmission block. When a key is used to set a locking function of the inner or outer cylinder, the transmission block and the indicator member pivot jointly. A user can see whether the locking function is set by observing the position of the indicator member via a window of an inner cylinder seat.

4 Claims, 20 Drawing Sheets



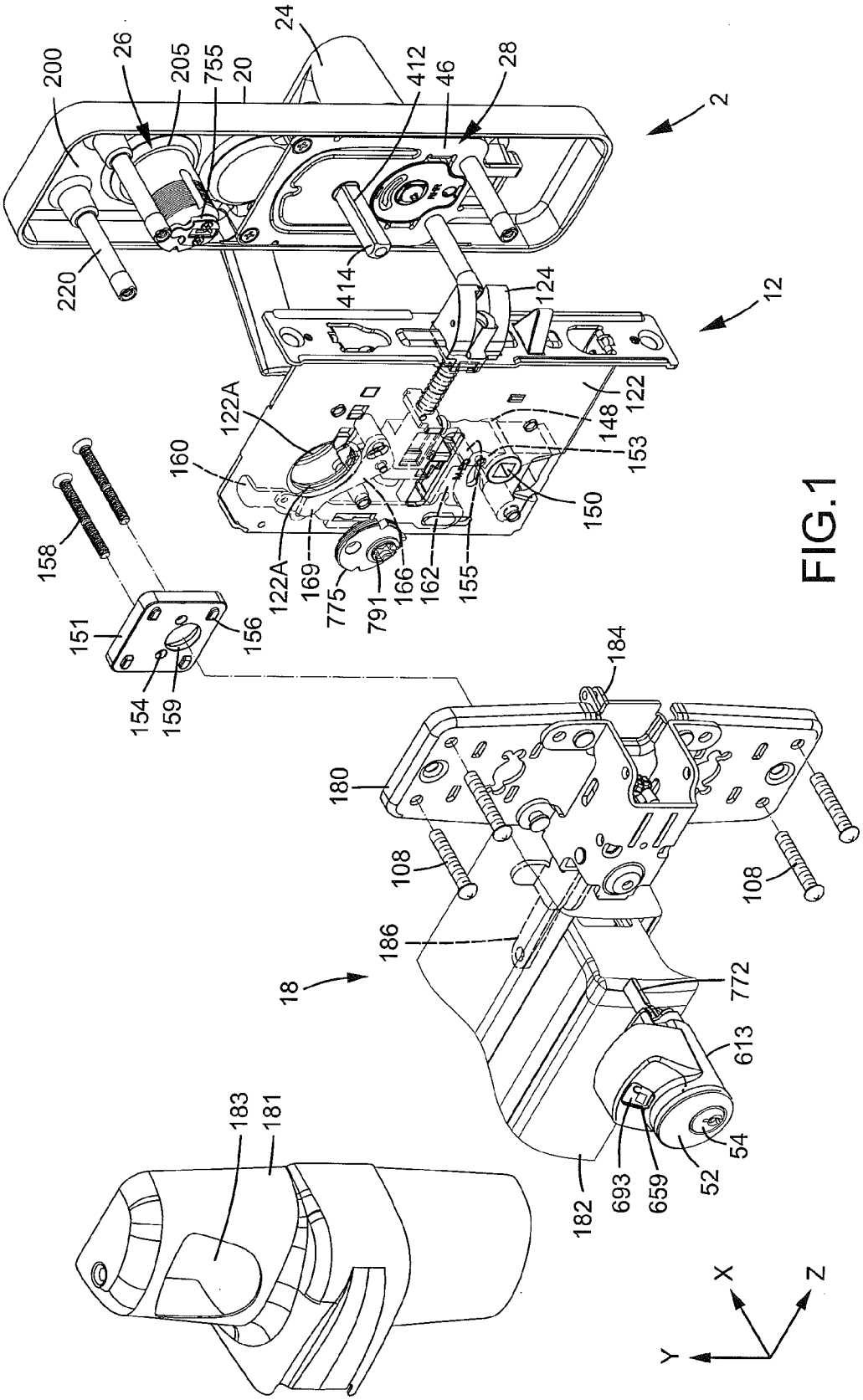

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FIG.1

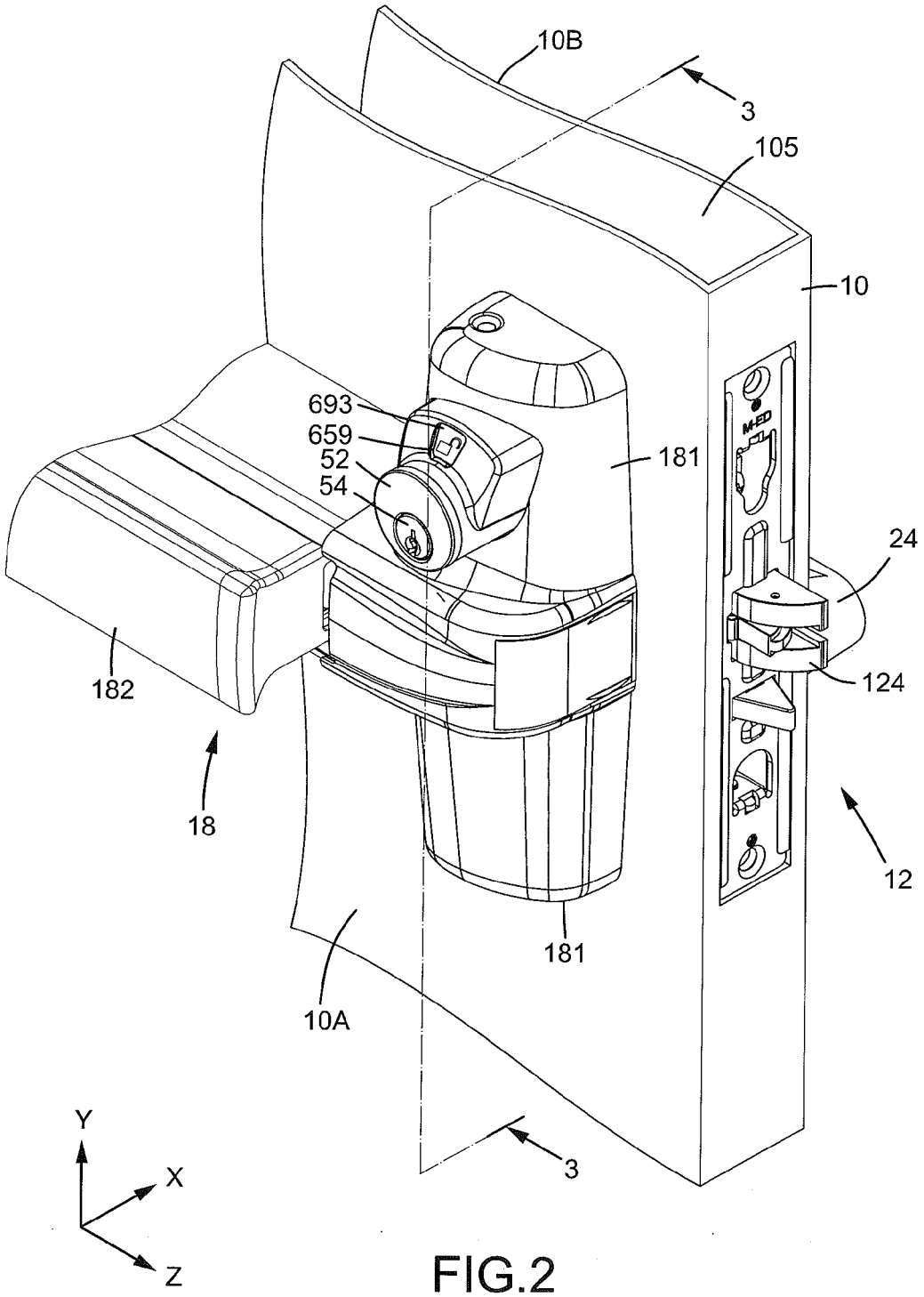

FIG.2

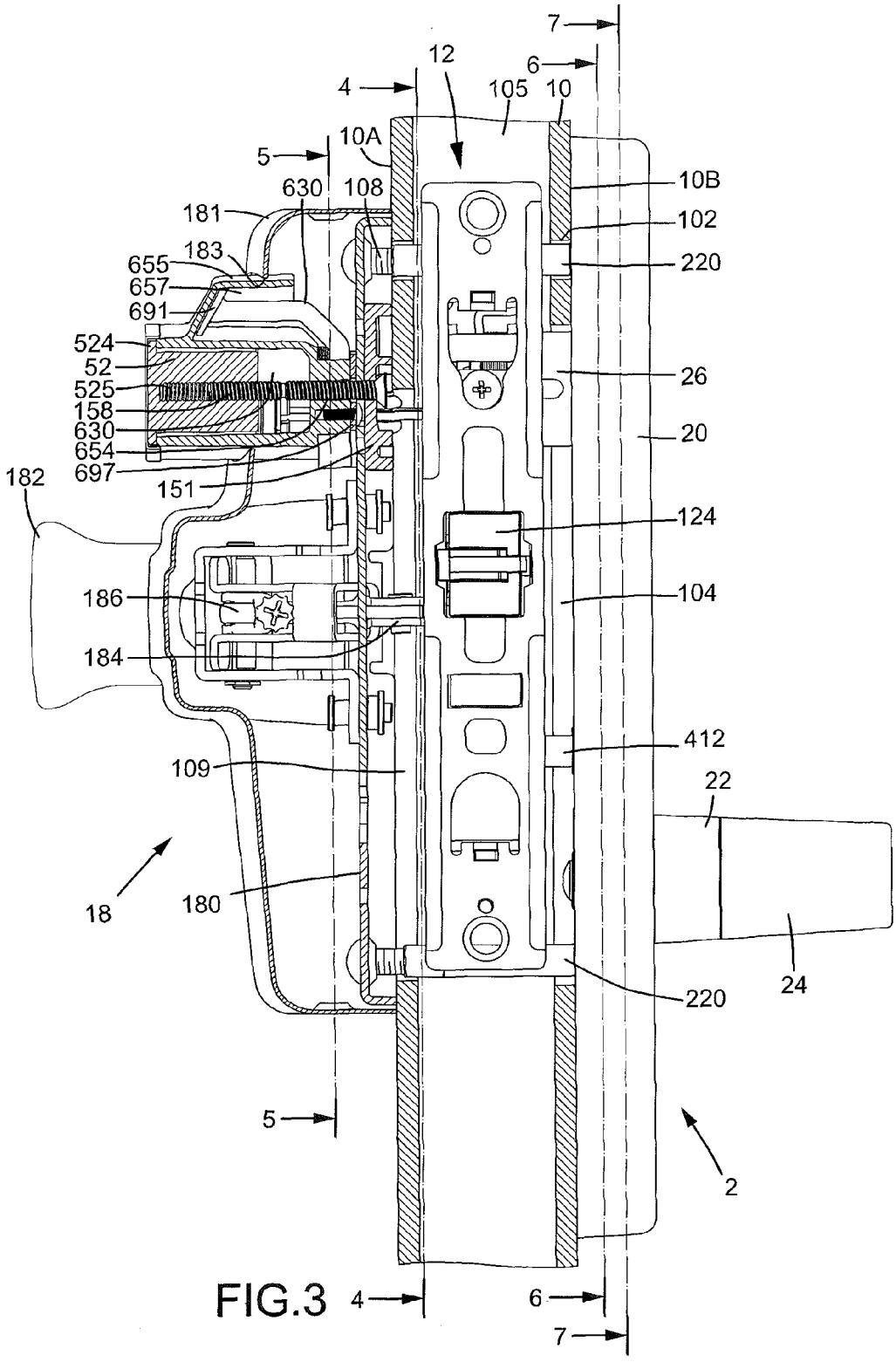
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FIG.3

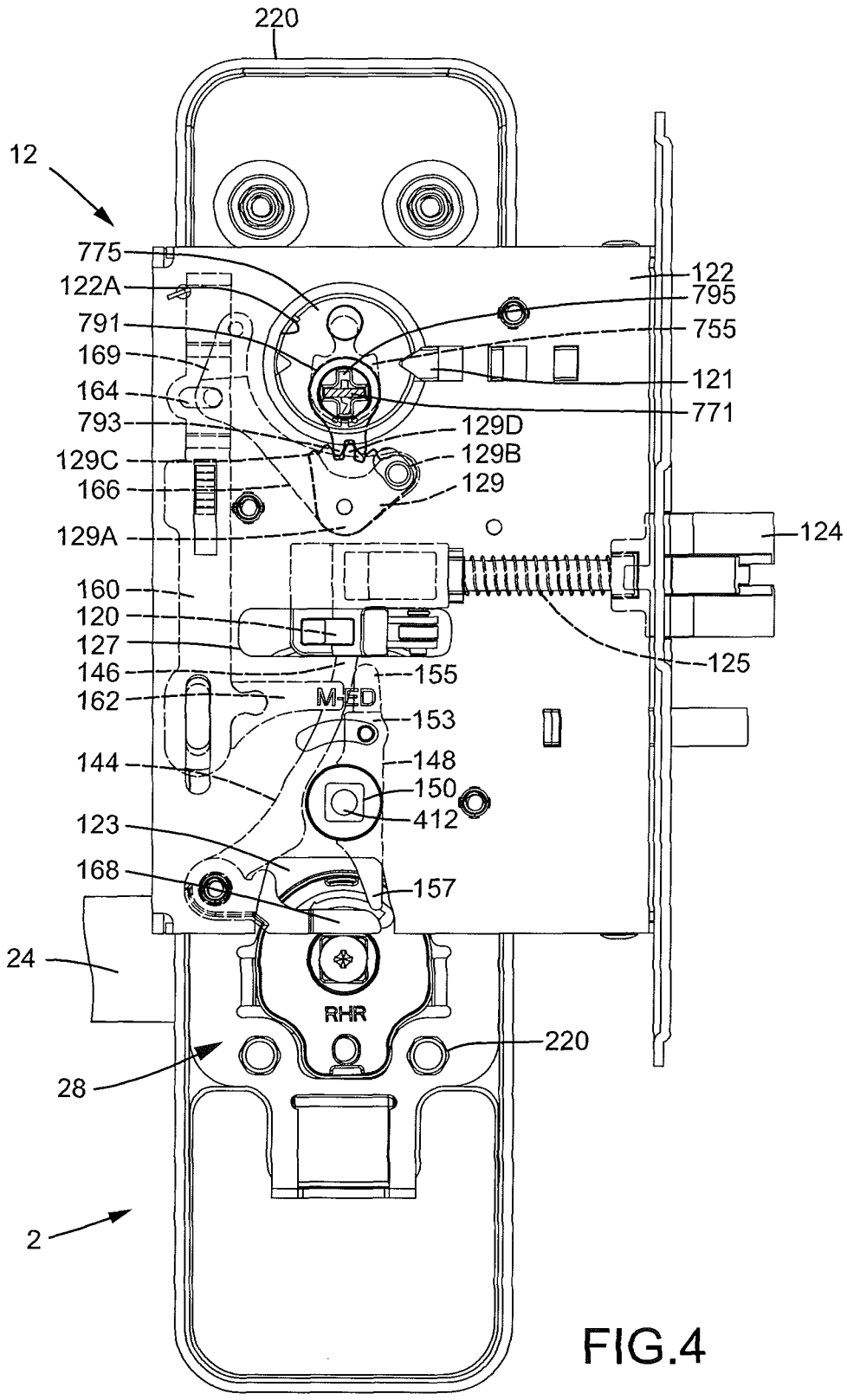
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FIG.4

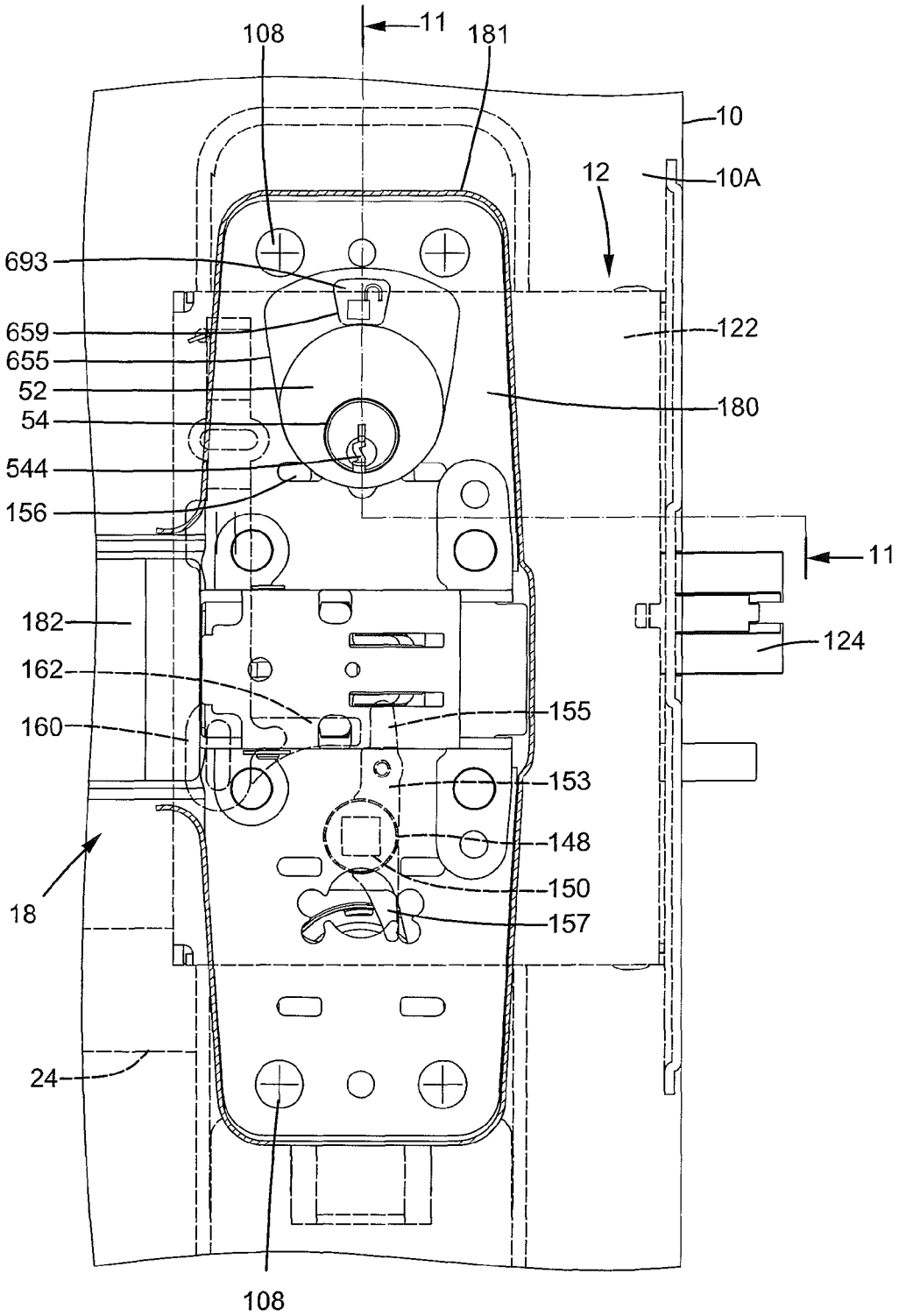
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FIG.5

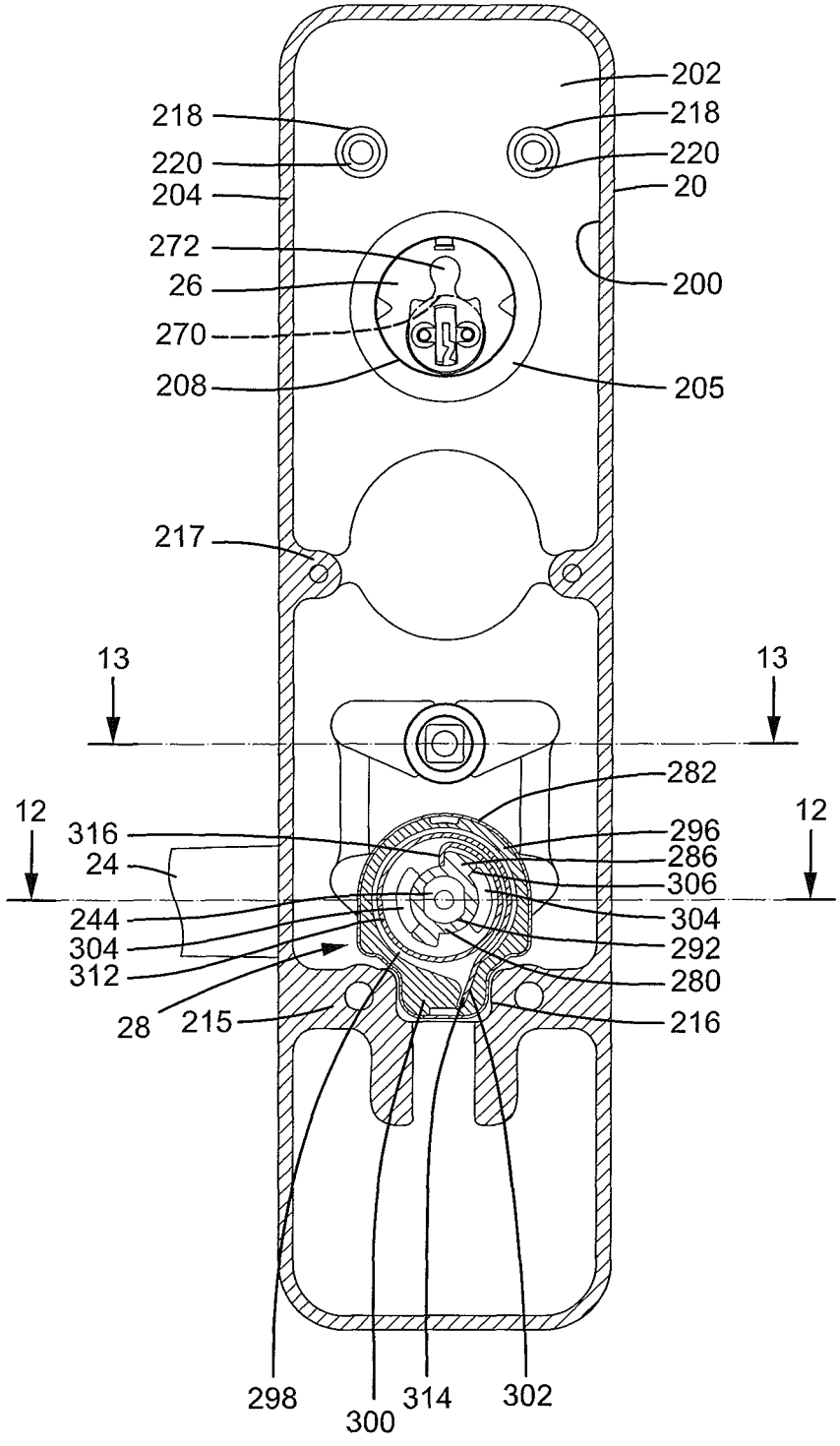
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FIG.6

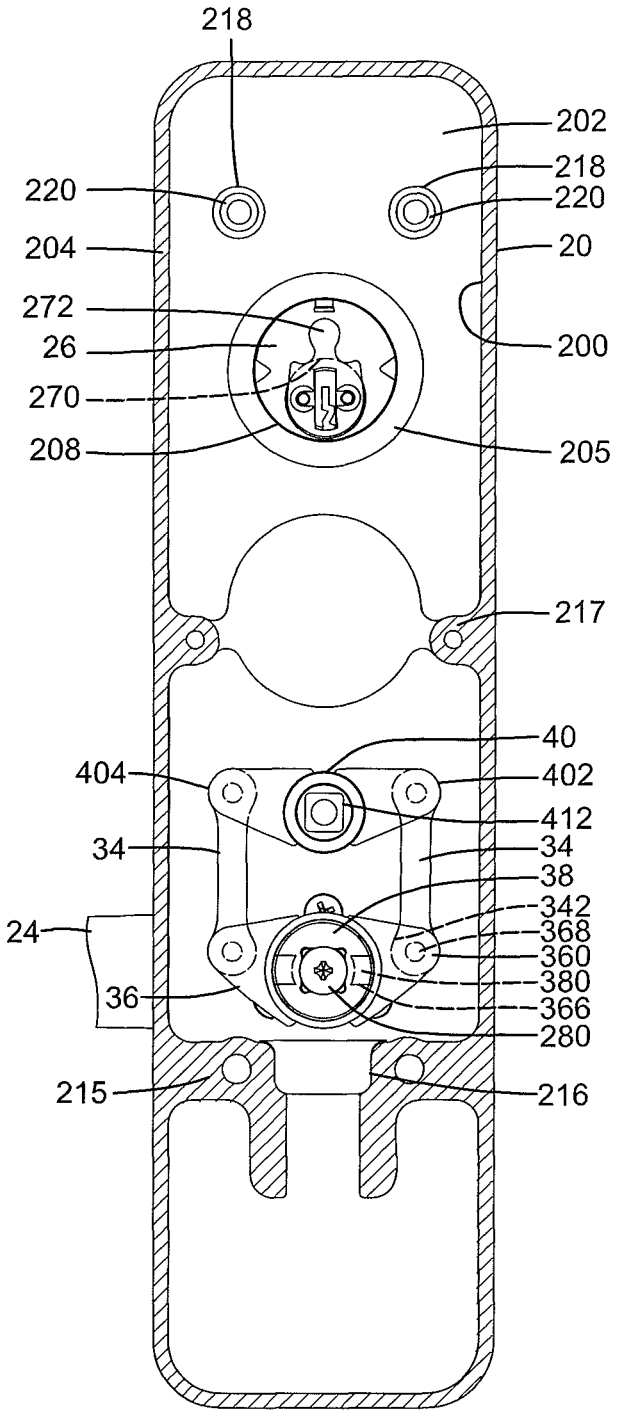
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FIG.7

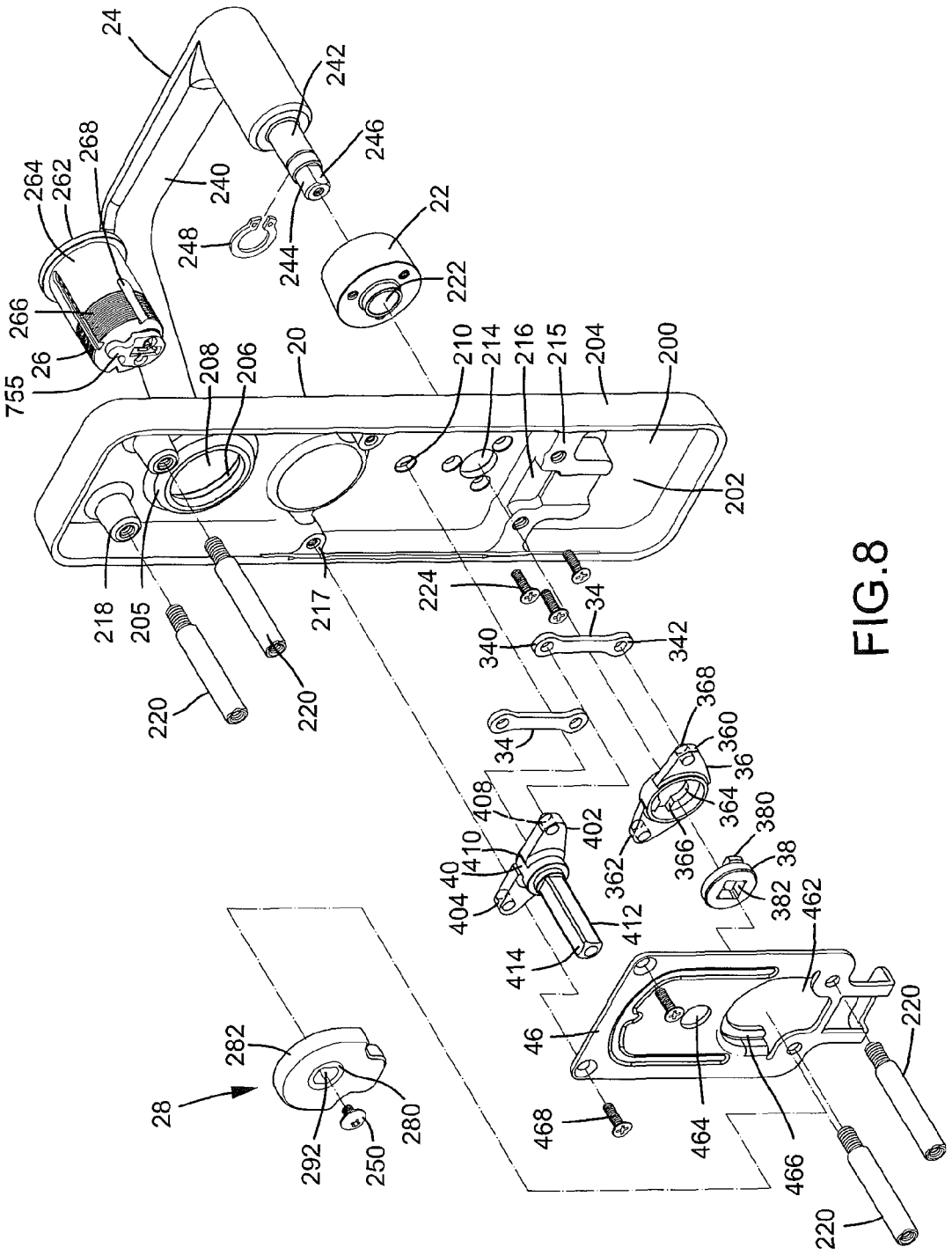
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FIG.8

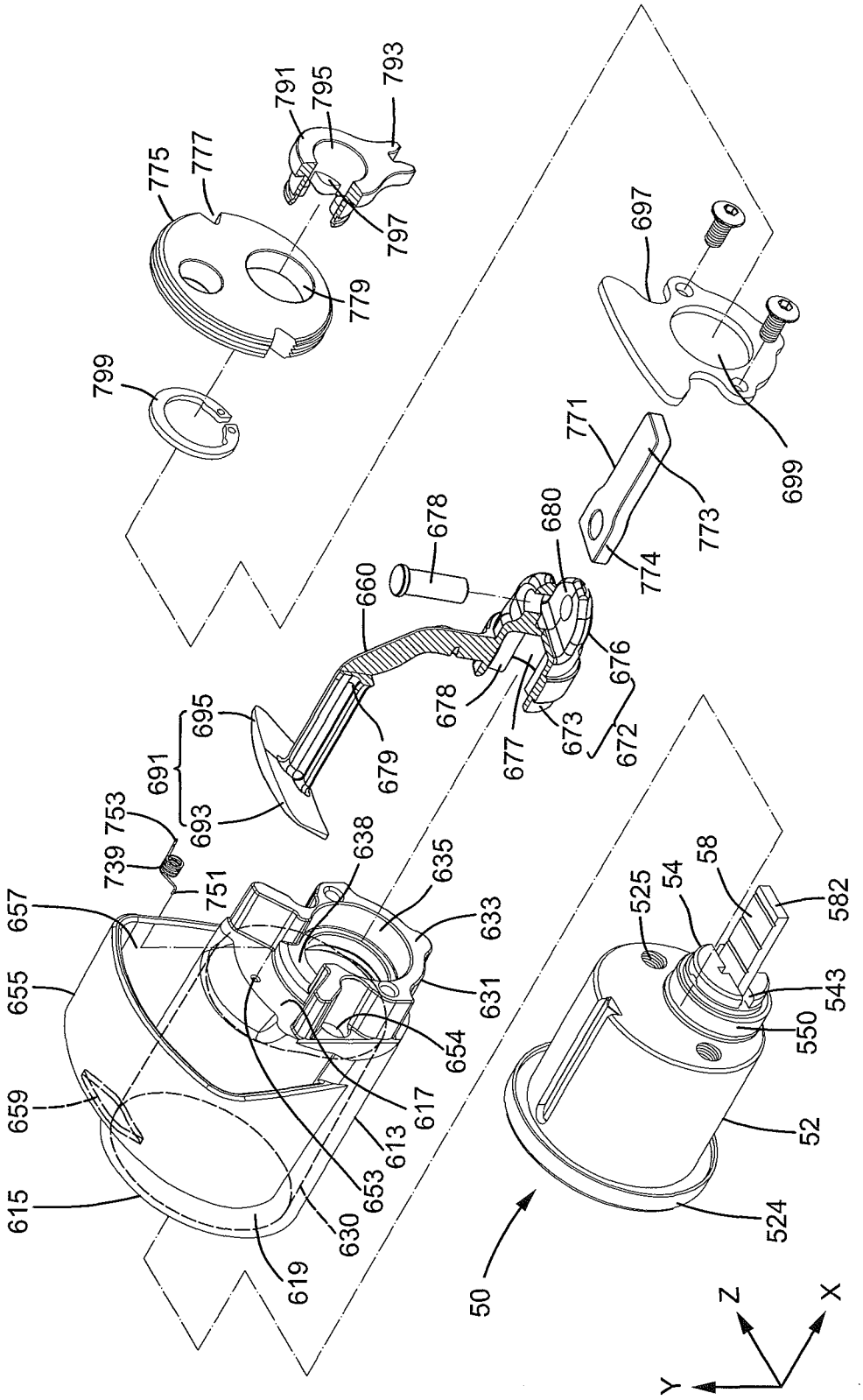
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FIG.9

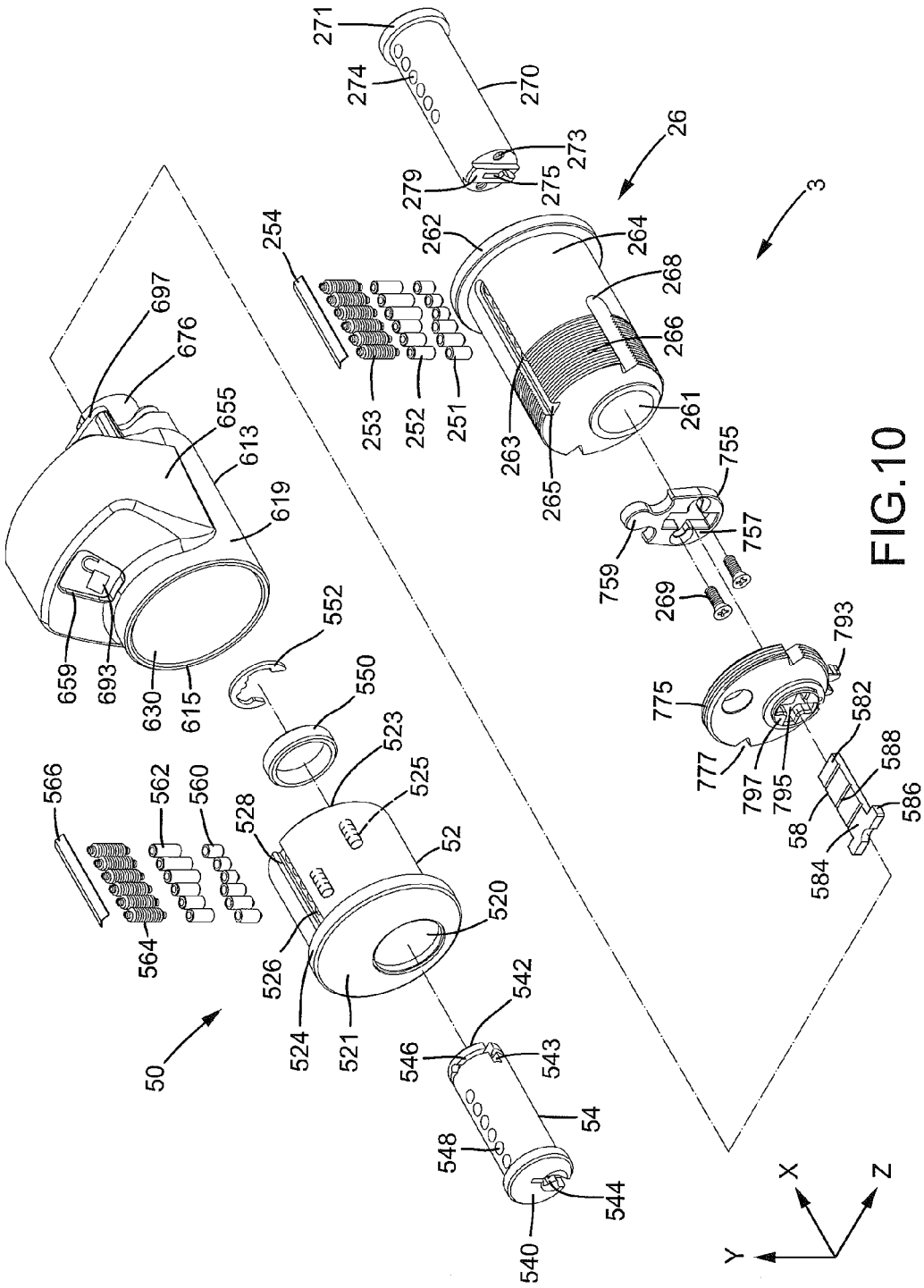
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FIG.10

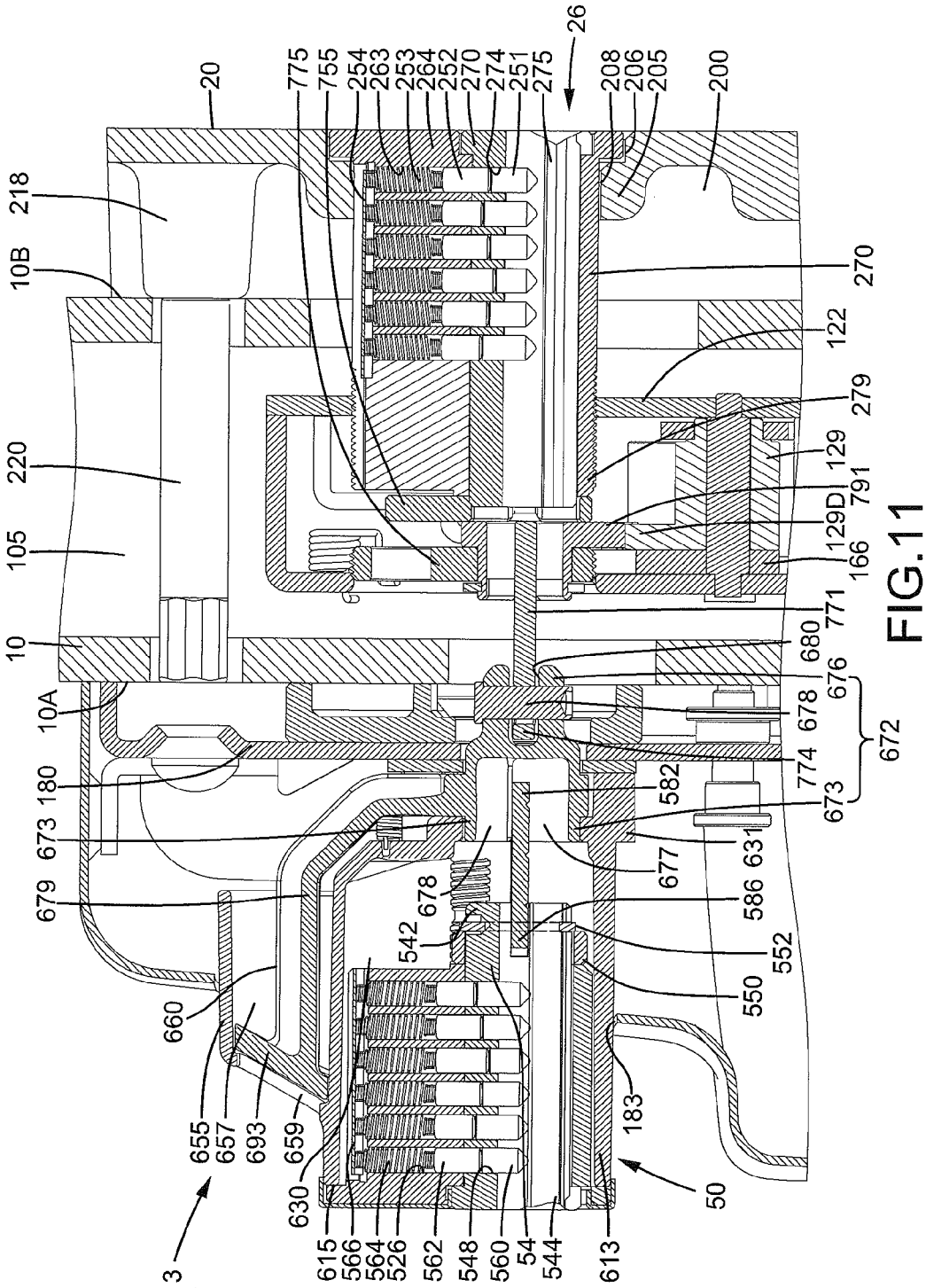
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FIG.11

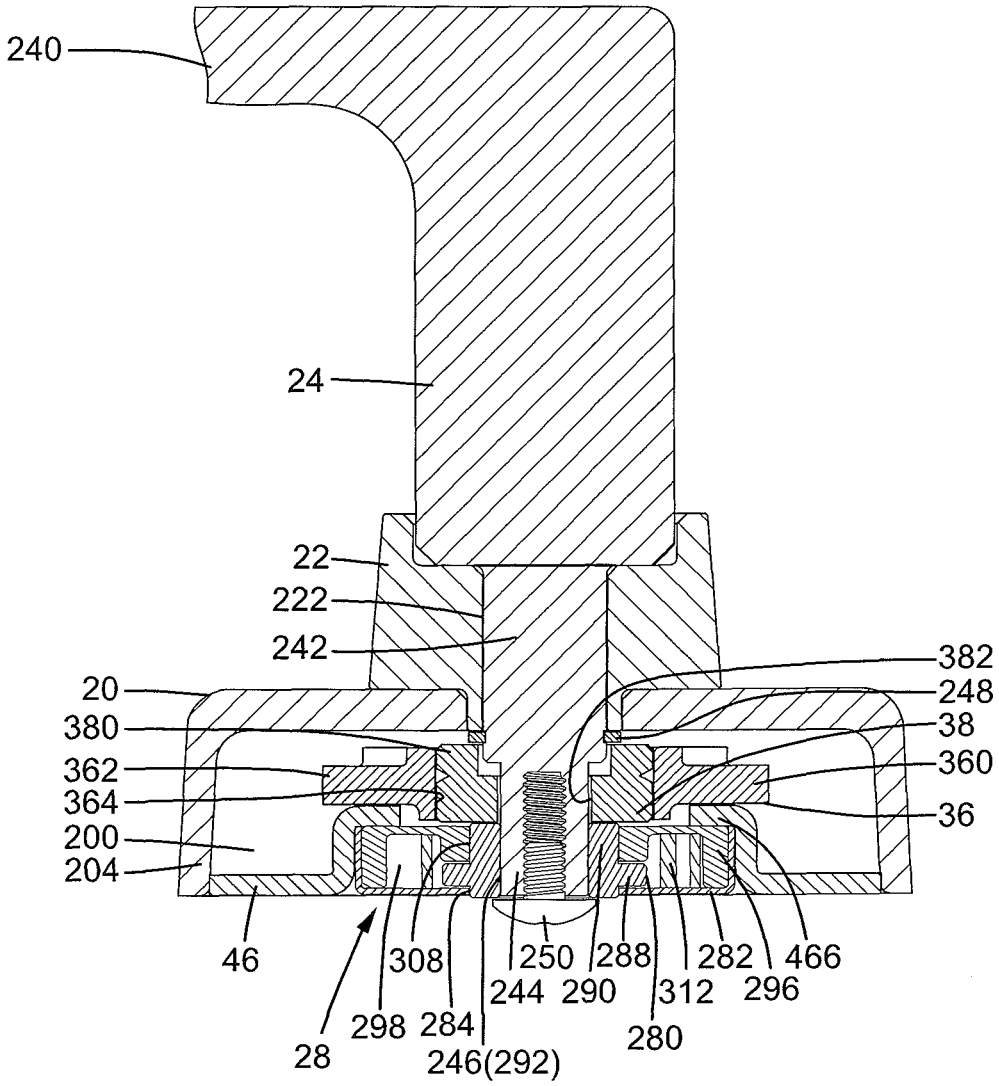
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FIG.12

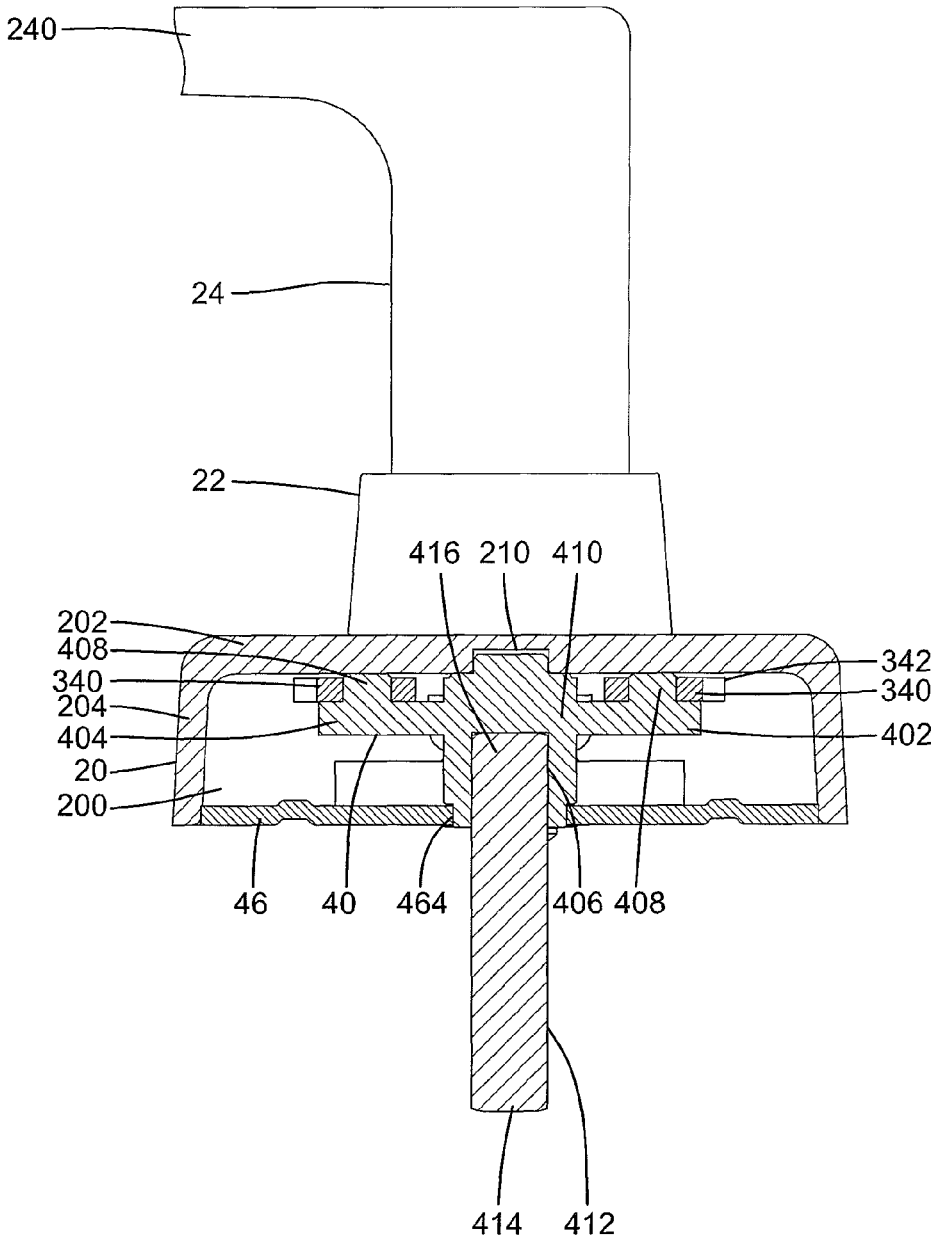
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FIG.13

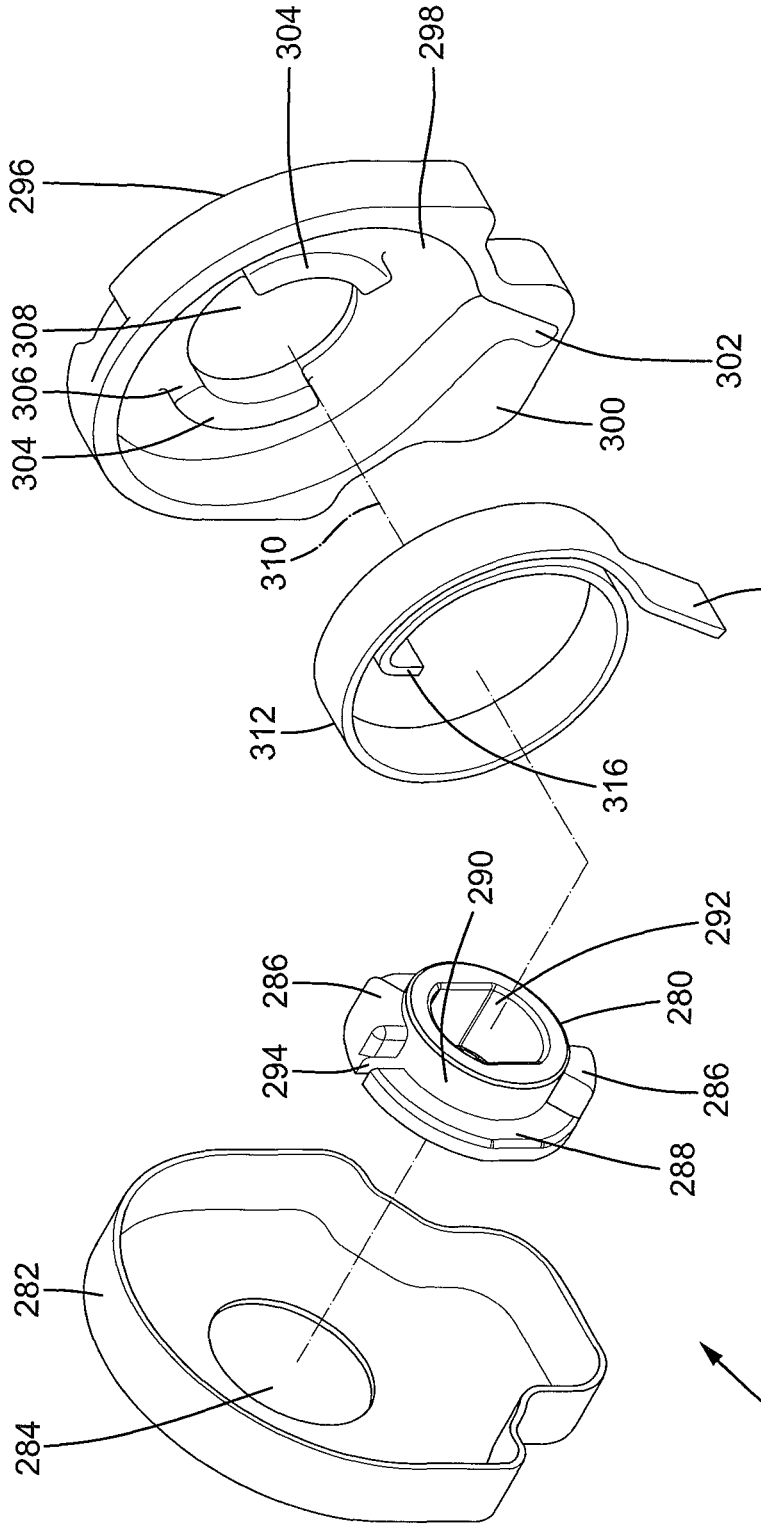
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FIG.14

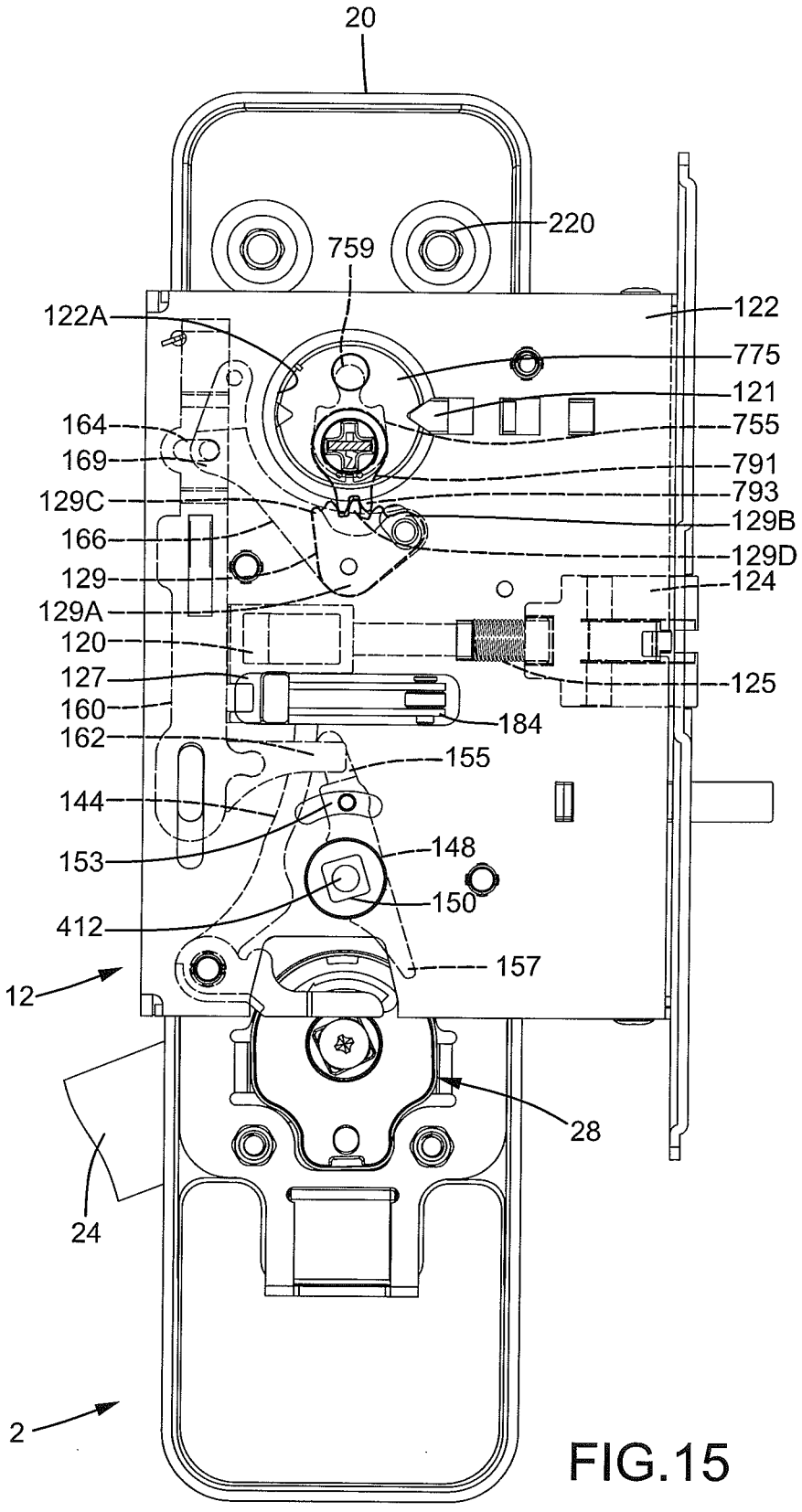
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FIG.15

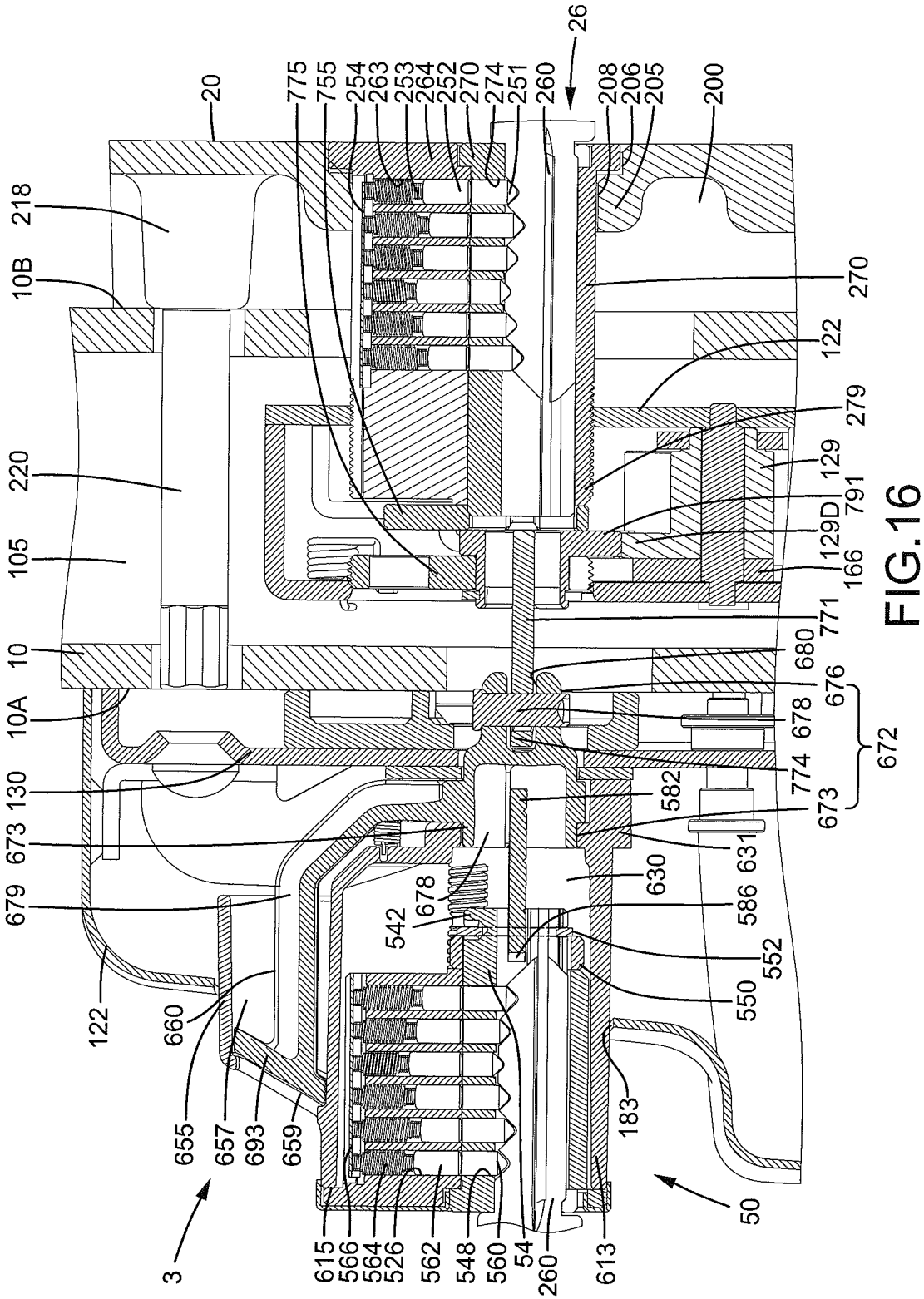
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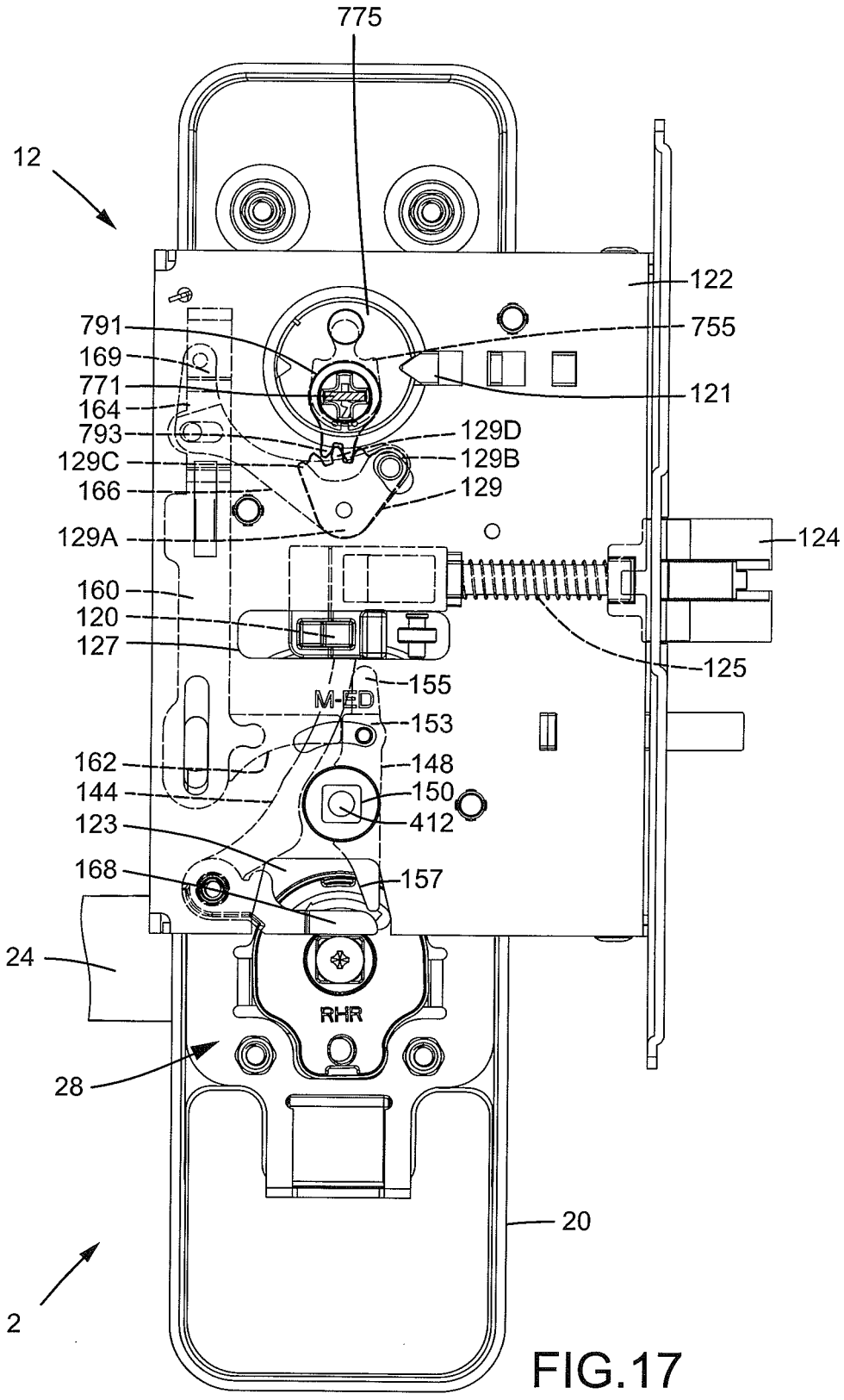
FIG.16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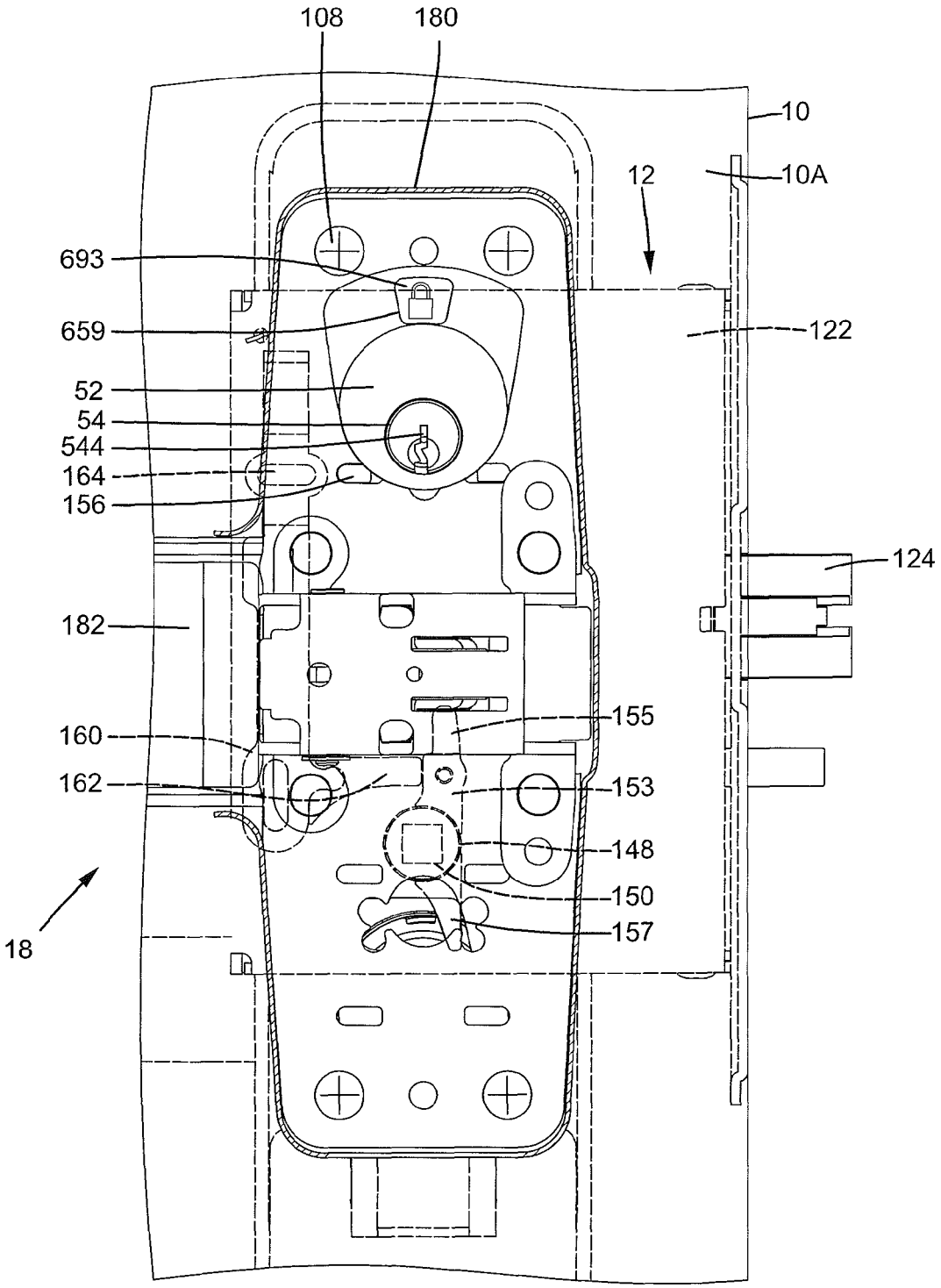
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FIG.18

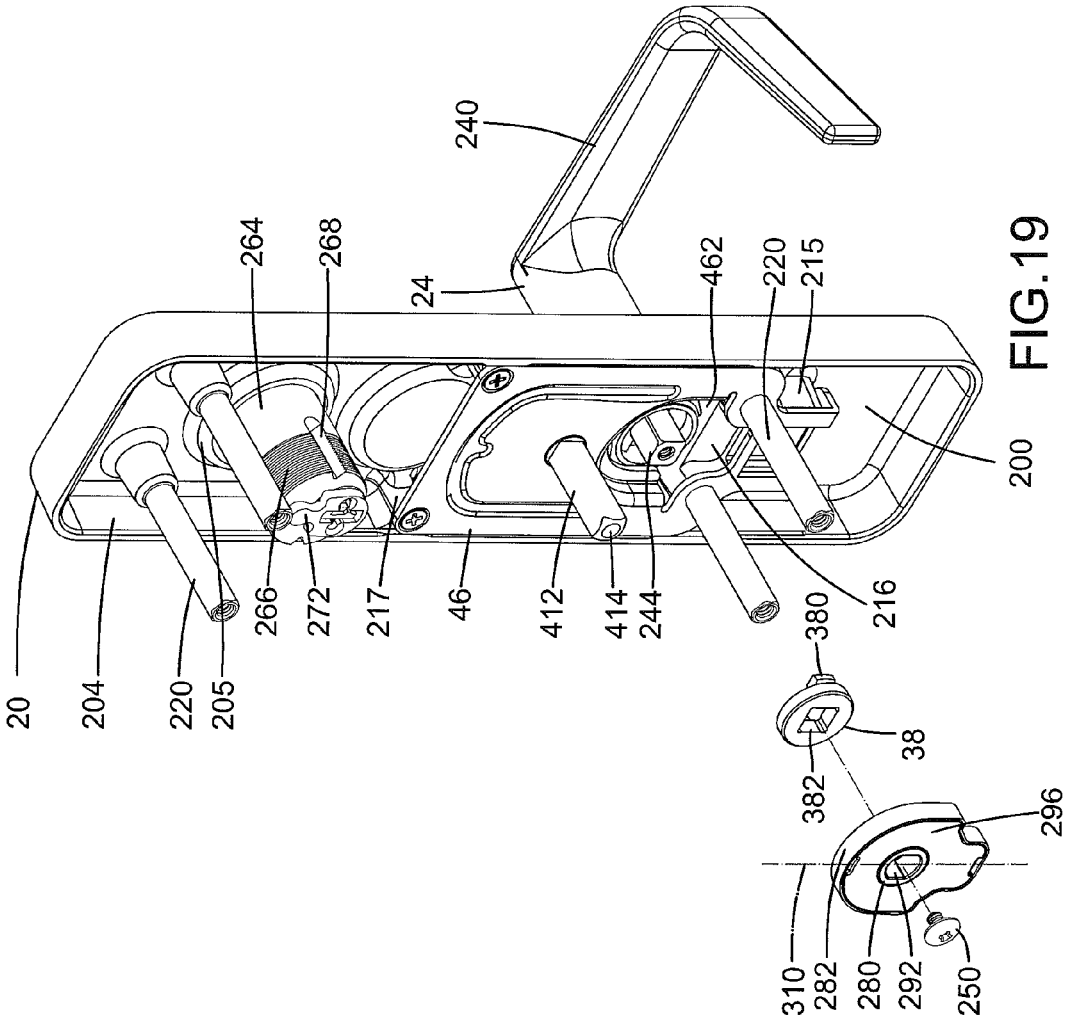
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FIG.19

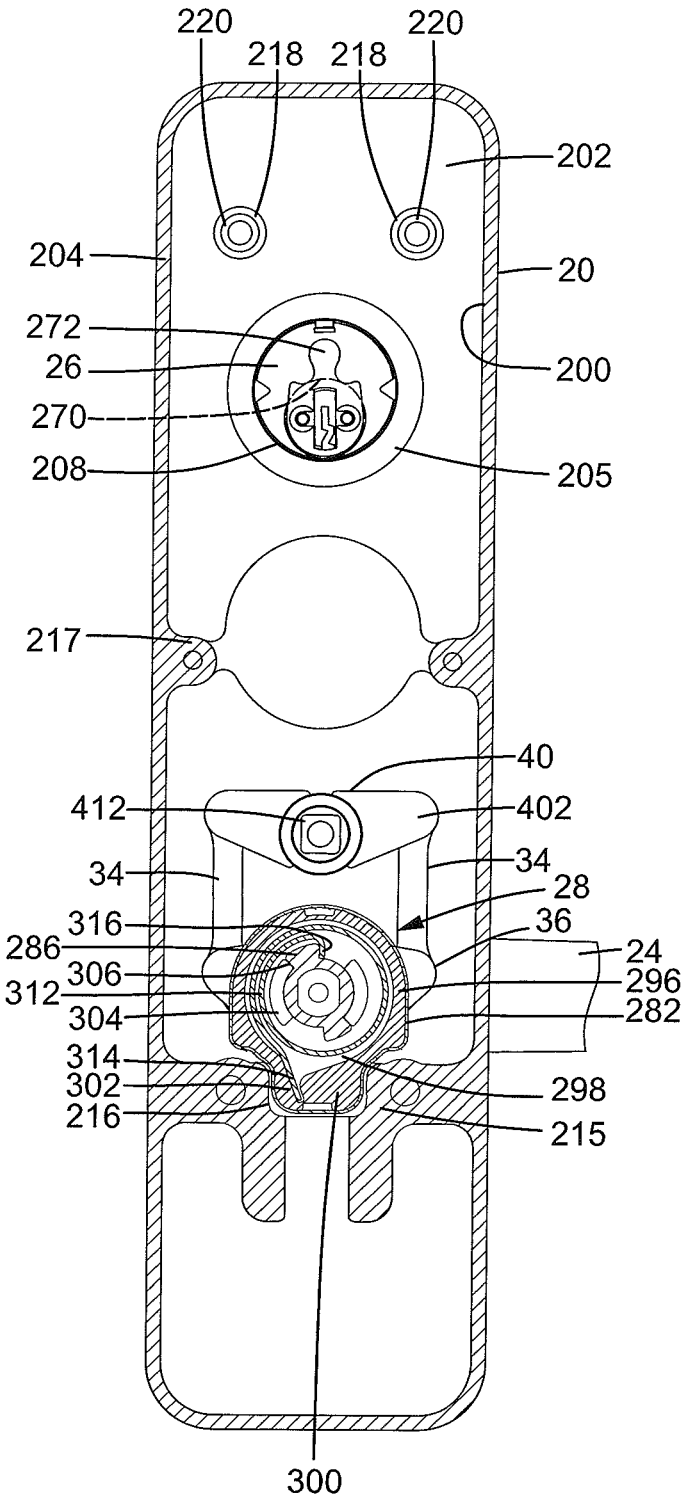
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FIG.20

PANIC EXIT DOOR LOCK WITH AN INDICATION OF A LOCKING STATE

BACKGROUND OF THE INVENTION

The present invention relates to a panic exit door lock with an indication of a locking state and, more particularly, to a panic exit door lock including a locking state indicator providing a visual indication from an inner side of a door.

Panic exit door locks (or referred to as "exit devices for doors") are widely used on panic exit doors and passageway doors in apartment houses and buildings to keep the frequently used doors in a state allowing easy passage. Such panic exit door locks generally include a press bar mounted to a side of the door and having a larger area to allow easy and rapid unlatching through simple pressing of the press bar, which is particularly useful in case of emergency, such as fire. Furthermore, the panic exit door locks can include a locking function in which a user at the inner side of the door can easily unlock while a user at the outer side of the door must use a key. However, the user at the inner side of the door can not confirm whether the panic exit door lock is in the locking state by pressing the press bar.

Thus, a need exists for a panic exit door lock including a locking state indicator providing a visual indication from the inner side of the door.

BRIEF SUMMARY OF THE INVENTION

The present invention solves this need and other problems in the field of indication of the locking state of panic exit door locks by providing a panic exit door lock including a cover adapted to be mounted to an outer side of a door. The cover defines a space. A handle is rotatably mounted to an outer side of the cover. A driving member is mounted in the space of the cover. The driving member is operably connected to the handle. The driving member and the handle pivot jointly. A case is adapted to be mounted in a mounting hole of the door. An unlocking member is pivotably mounted in the case. The unlocking member and the driving member pivot jointly. The unlocking member pivots when the handle rotates. A latch is slideably received in the case and is operably connected to the unlocking member. The latch is movable between a latching position outside of the case and an unlatching position inside of case when the unlatching member pivots.

The panic exit door lock further includes a locking member slideably mounted in the case. The locking member is movable between a locking position preventing pivotal movement of the unlocking member and an unlocking position allowing pivotal movement of the unlocking member. A rocker is pivotably mounted in the case and operably connected to the locking member. The locking member moves between the locking position and the unlocking position when the rocker pivots. A base is adapted to be mounted to an inner side of the door opposite to the outer side of the door. A driving rod is pivotably mounted in the base. The driving rod is operably connected to the latch. The latch moves from the locking position to the unlocking position when the driving rod pivots. An operative member is slideably mounted to the base and is operably connected to the driving rod. The driving rod pivots when the operative member is moved.

The panic exit door lock further includes an outer cylinder including an outer cylinder body mounted to the cover and an outer lock core rotatably received in the outer cylinder body. An actuating block is fixed to the outer lock core. The actuating block and the outer lock core pivot jointly. The actuating block is operably connected to the rocker. An inner cylinder seat is fixed to the base and includes a peripheral wall defining a first compartment. A shield is formed on the peripheral wall and defines a second compartment. The shield further includes a window in communication with the second compartment. An inner cylinder is received in the first compartment. The inner cylinder includes an inner cylinder body and an inner lock core rotatably received in the inner cylinder body.

The panic exit door lock further includes an indicator member including a pivotal portion pivotably connected to the inner cylinder seat. The indicator member further includes an arm extending from the pivotal portion. An indicator is provided on the arm and has a first portion indicating the unlocking member is in the unlocking position and a second portion indicating the unlocking member is in the locking position. One of the first and second portions is selectively aligned with the window. A tongue is fixed to the inner lock core. The tongue and the inner lock core pivot jointly. The tongue extends through the pivotal portion of the indicator member. The tongue and the indicator pivot jointly. A setting member is pivotably mounted in the case and is connected to the rocker. The setting member and the rocker move jointly. The setting member and the indicator member move jointly. The setting member and the rocker pivot jointly when the inner lock core pivots.

When the inner lock core is rotated in a direction, the indicator member is moved to a position in which the first portion or the second portion is aligned with the window of the inner cylinder seat. When the outer lock core is rotated in a direction, the actuating block pivots to drive the setting member to pivot via the rocker, causing one of the first and second portions of the indicator member to align with the window of the inner cylinder seat. When the first portion of the indicator member is aligned with the window of the inner cylinder seat, the locking member is in the locking position, and the unlocking member and the latch are not moved if the handle is rotated. When the second portion of the indicator member is aligned with the window of the inner cylinder seat, the unlocking member is in the unlocking position, and the unlocking member is moved to move the latch from the latching position to the unlatching position if the handle is rotated.

The present invention will become clearer in light of the following detailed description of illustrative embodiments of this invention described in connection with the drawings.

DESCRIPTION OF THE DRAWINGS

The illustrative embodiments may best be described by reference to the accompanying drawings where:

FIG. **1** is an exploded, perspective view of a panic exit door lock according to the present invention.

FIG. **2** is a perspective view of the panic exit door lock of FIG. **1** and a door to which the panic exit door lock is mounted.

FIG. **3** is a cross sectional view taken along section line **3-3** of FIG. **2**.

FIG. **4** is a cross sectional view taken along section line **4-4** of FIG. **3**.

FIG. **5** is a cross sectional view taken along section line **5-5** of FIG. **3**.

FIG. **6** is a cross sectional view taken along section line **6-6** of FIG. **3**.

FIG. **7** is a cross sectional view taken along section line **7-7** of FIG. **3**.

FIG. **8** is an exploded, perspective view of an outer operational device of the panic exit door lock of FIG. **1**.

FIG. **9** is an exploded, perspective view of an inner cylinder of the panic exit door lock of FIG. **1**.

FIG. **10** is an exploded, perspective view of a locking mechanism of the panic exit door lock of FIG. **1**.

FIG. **11** is a cross sectional view taken along section line **11-11** of FIG. **5**.

FIG. **12** is a cross sectional view taken along section line **12-12** of FIG. **6**.

FIG. **13** is a cross sectional view taken along section line **13-13** of FIG. **6**.

FIG. **14** is an exploded, perspective view of a returning device of the outer operational device.

FIG. **15** is a view similar to FIG. **4**, with a handle rotated for unlatching purposes.

FIG. **16** is a view similar to FIG. **11**, with keys inserted into the inner cylinder and an outer cylinder of the locking mechanism.

FIG. **17** is a view similar to FIG. **4**, with a locking member moved from an unlocking position to a locking position.

FIG. **18** is a view similar to FIG. **5**, with the locking member in the locking position, and with an indicator of the locking mechanism indicating a locking state of the door lock.

FIG. **19** is a partly exploded perspective view of the panic exit door lock of FIG. **1**, with the returning device rotated to a position allowing the panic exit door lock to be mounted to a differently-handed door.

FIG. **20** is cross sectional view of the panic exit door lock of FIG. **19** mounted to a differently handed door.

All figures are drawn for ease of explanation of the basic teachings of the present invention only; the extensions of the figures with respect to number, position, relationship, and dimensions of the parts to form the preferred embodiments will be explained or will be within the skill of the art after the following teachings of the present invention have been read and understood. Further, the exact dimensions and dimensional proportions to conform to specific force, weight, strength, and similar requirements will likewise be within the skill of the art after the following teachings of the present invention have been read and understood.

Where used in the various figures of the drawings, the same numerals designate the same or similar parts. Furthermore, when the terms "first", "second", "third", "lower", "front", "rear", "upper", "inner", "outer", "side", "end", "portion", "section", "axial", "lateral", "horizontal", "vertical", "annular", "inward", "spacing", "clockwise", "counterclockwise", "length", "height", and similar terms are used herein, it should be understood that these terms have reference only to the structure shown in the drawings as it would appear to a person viewing the drawings and are utilized only to facilitate describing the invention.

DETAILED DESCRIPTION OF THE INVENTION

A panic exit door lock according to the present invention is shown in the drawings and is adapted to be mounted to a side of a door **10**. According to the form shown, door **10** includes an inner side **10**A and an outer side **10**B. It is noted that inner and outer sides **10**A and **10**B are exchanged when door **10** is installed as a differently handed door. According to the form shown in FIG. **3**, door **10** is installed as a right-handed door. Furthermore, door **10** includes a mounting hole **105** in an edge extending between inner side **10**A and outer side **10**B. Door **10** further includes a plurality of first holes **102** extending from inner side **10**A through outer side **10**B. Door **10** further includes a second hole **104** in outer side **10**B and a third hole **109** in inner side **10**A. Each of first, second, and third holes **102**, **104**, and **109** is in communication with mounting hole **105**.

In the form shown, the panic exit door lock includes a lock **12** in the form shown as a mortise lock. Lock **12** is mounted in mounting hole **105**. The panic exit door lock further includes an inner operational device **18** mounted to inner side **10**A of door **10**, an outer operational device **2** mounted to outer side **10**B of door **10**, and a locking mechanism **3** mounted in inner and outer operational devices **18** and **2** (see FIGS. **2**, **3**, **10**, and **11**). Inner and outer operational devices **18** and **2** and lock **12** can be of any desired form as conventional including but not limited to of a commercially available type.

According to the form shown, lock **12** includes a case **122** mounted in mounting hole **105** of door **10** and having an opening **123** in a lower end thereof. Case **122** further includes a sliding groove **127** in a side thereof. Case **122** further includes two mounting holes **122**A aligned with each other, located above sliding groove **127**, and having inner threads. A retractor **120** is slideably received in case **122** and is slideably received in sliding groove **127**. A spring **125** is mounted between retractor **120** and a latch **124**, allowing latch **124** to move along a first axis X between a latching position outside of case **122** and an unlatching position inside of case **122** responsive to sliding movement of retractor **120**.

According to the form shown, an unlocking member **148** is pivotably mounted in case **122** and is located below latch **124** along a second axis Y perpendicular to first axis X. Unlocking member **148** includes a push arm **153** formed on an outer periphery thereof and a follower arm **157** located below push arm **153** along second axis Y. A hole **150** is formed in a center of unlocking member **148**. A groove **155** is formed in a distal end of push arm **153** and is spaced from hole **150**.

According to the form shown, a push rod **144** is pivotably mounted in case **122** and is located adjacent to unlocking member **148**. Push rod **144** is arcuate and includes an end **146** abutting retractor **120**. The other end of push rod **144** is pivotably connected to case **122**. Push arm **153** of unlocking member **148** abuts a side of push rod **144**. In the form shown, push rod **144** can only be pushed by push arm **153** to pivot when unlocking member **148** rotates in the counterclockwise direction in FIG. **4**. Namely, push rod **144** is not moved if unlocking member **148** rotates in the clockwise direction.

According to the form shown, a locking member **160** is slideably received in case **122** and includes a horizontal guide slot **164** in an upper portion thereof. Locking member **160** includes a stop **162** at a lower portion thereof. A transmission block **129** and a rocker **166** are pivotably mounted in case **122**. Specifically, transmission block **129** is substantially a triangle when viewed from a side and includes first and second ends **129**B and **129**C and a pivotal portion **129**A between first and second ends **129**B and **129**C. In the form shown, the pivotal portion **129**A and first and second ends **129**B and **129**C are substantially located in three apexes of the triangle. Transmission block **129** further includes a toothed portion **129**D located between the first and second ends **129**B and **129**C and opposite to pivotal portion **129**A. Toothed portion **129**D includes a plurality of teeth. Transmission block **129**A overlaps with a portion of rocker **166** and is pivotably received in case **122**. Pivotal portion **129**A of transmission block **129** is pivotably connected to rocker **166**. First end **129**B of transmission block **129** is mounted to rocker **166**. Thus, transmission block **129** and rocker **166** can pivot jointly.

Rocker **166** has an end **169** slideably received in guide slot **164** of locking member **160**. Thus, when transmission block **129** pivots, rocker **166** pivots and, thus, moves locking mem-

ber **160** to move stop **162** of locking member **160** between an unlocking position (FIGS. **4** and **5**) aligned with groove **155** of push arm **153** of unlocking member **148** and a locking position (FIGS. **17** and **18**) not aligned with groove **155** of push arm **153** to prevent movement of push arm **153**. A pressing rod **168** is pivotably mounted in case **122** and abuts a lower portion of follower arm **157**. Pressing rod **168** can be coupled through a lift arm to a handle, so that operation of the handle causes pivotable movement of unlocking member **148** through follower arm **157**. However, pressing rod **168** can be omitted without adversely affecting operation of outer operational device **2**.

According to the form shown, inner operational device **18** includes a base **180**, a driving rod **184** pivotably mounted to base **180**, and a linking rod **186** slideably received in base **180**. An operative member **182** in the form shown as a press bar is pivotably mounted outside of base **180** and is operably connected to linking rod **186**. An end of driving rod **184** extends through third hole **109** of door **10** and sliding groove **127** into case **122** of lock **12** and abuts a side of retractor **120**. When operative member **182** is actuated, linking rod **186** is moved to draw driving rod **184**, which, in turn, moves retractor **120**. Thus, latch **124** is moved from the latching position to the unlatching position for unlatching purposes. A casing **181** is mounted around base **180** and includes an opening **183** in an upper portion thereof.

For safety consideration, operative member **182** of inner operational device **18** for a panic exit door has a large area to allow easy access and operation by a user. Furthermore, in urgent conditions, door **10** will be opened by operating operative member **182** whether lock **12** is in the locking state or unlocking state. Outer operational device **2** provides a locking function and allows opening door **10** from the outside.

According to the form shown, outer operational device **2** includes a cover **20** having a sidewall **202** extending in a vertical direction and an annular wall **204** extending perpendicularly along a periphery of sidewall **202**, defining a space **200** between annular wall **204** and sidewall **202**. Sidewall **202** includes a receiving portion **205** in an upper portion thereof. Receiving portion **205** extends into space **200** and forms a compartment **206** that has an opening **208** in communication with space **200**. Sidewall **202** further includes a fixing hole **210** below opening **208**. Sidewall **202** further includes an engaging hole **214** below fixing hole **210**. A protrusion **215** extends from an inner face of sidewall **202** below engaging hole **214** and includes a groove **216**. Two pegs **218** are formed on the inner face of sidewall **202** and are located above opening **208**. Annular wall **204** includes two supports **217** on two inner, vertical faces thereof. Each support **217** has a height from sidewall **202** the same as that of protrusion **215**.

Two mounting posts **220** are extended through two of first holes **102** of door **10** into screw holes in pegs **218**. Furthermore, two additional mounting posts **220** extend through the other two first holes **102** into screw holes in protrusions **215**. Cover **20** is mounted to outer side **10**B of door **10** and covers second and third holes **104** and **109**, with annular wall **204** abutting outer side **10**B. Each mounting post **220** has an end abutting base **180**. A fastener **108** extends through base **180** into a screw hole in the end of each mounting post **220**.

According to the form shown, outer operational device **2** further includes a substantially cylindrical sleeve **22** mounted to an outer face of sidewall **202**. Sleeve **22** includes a central pivot hole **222** aligned with engaging hole **214** of cover **20**. Fasteners **224** extend through sidewall **202** into holes **226** in an end face of sleeve **22** to fix sleeve **22** on cover **20**.

According to the form shown, outer operational device **2** further includes a handle **24** having a stem **240** located outside of cover **20** and adapted to be gripped by a user. Handle **24** further includes a shank **242** extending from an end of stem **240**. Shank **242** includes an engaging portion **244** in the form shown having two chamfered faces **246** so that engaging portion **244** has non-circular cross sections. Shank **242** is pivotably received in pivot hole **222** of sleeve **22** about a pivot axis, and engaging portion **244** is located outside of pivot hole **222**. A retainer ring **248** in the form shown as a C-clip is mounted around shank **242** to prevent axial movement of handle **24** along the pivot axis.

According to the form shown, outer operational device **2** further includes an actuating member **36** having a connecting hole **364** in an intermediate portion thereof. Two diametrically opposed rectangular grooves **366** are formed in an inner periphery of connecting hole **364**. Actuating member **36** further includes first and second ends **360** and **362** on opposite sides of connecting hole **364**. Shank **242** of handle **24** extends through connecting hole **364**. A first axle **368** is formed on a side of first end **360** of actuating member **36** facing cover **20**, and a second axle **368** is formed on a side of second end **362** of actuating member **36** facing cover **20**.

According to the form shown, outer operational device **2** further includes a follower **38** in the form shown as a ring. Follower **38** includes a non-circular hole **382** corresponding to non-circular engaging portion **244** of handle **24** and extending along a central axis thereof. Follower **38** further includes two diametrically opposed teeth **380** extending in a direction parallel to and spaced from the central axis of follower **38**. Engaging portion **244** of handle **24** is received in non-circular hole **382** of follower **38**, with follower **38** located outside of actuating member **36** and with teeth **380** engaged in grooves **366**. Thus, handle **24** and follower **38** rotate jointly due to non-circular hole **382** and non-circular engaging portion **244**. Furthermore, since teeth **380** of follower **38** are engaged in grooves **366** of actuating member **36**, rotation of handle **24** also causes rotation of actuating member **36**.

According to the form shown, outer operational device **2** further includes a driving member **40** including a pivotal portion **410** in the form shown as a rod. Pivotal portion **410** includes diametrically opposed first and second wings **402** and **404**. Each of first and second wings **402** and **404** includes a peg **408** facing cover **20**. An end of pivotal portion **410** is pivotably received in fixing hole **210** of cover **20**, such that driving member **40** is rotatable about a central axis of fixing hole **210**.

Driving member **40** further includes a driving rod **412** extending from a central portion thereof between first and second wings **402** and **404**. Driving rod **412** includes non-circular cross sections. Driving rod **412** further includes a front end **414** extending through third hole **109** into hole **150** of unlocking member **148**, so that rotation of driving rod **412** also causes rotation of unlocking member **148**.

According to the form shown, outer operational device **2** further includes first and second links **34**, with each of first and second links **34** having upper and lower ends **340** and **342**. Upper end **340** of first link **34** is pivotably coupled with peg **408** of first wing **402** between first wing **402** and sidewall **202**. Upper end **340** of second link **34** is pivotably coupled with peg **408** of second wing **402** between second wing **404** and sidewall **202**. Lower end **342** of first link **34** is pivotably coupled with first axle **368** of actuating member **36** between first end **360** of actuating member **36** and sidewall **202**. Lower end **342** of second link **34** is pivotably coupled with second axle **368** of actuating member **36** between second end **362** of actuating member **36** and sidewall **202**.

According to the form shown, outer operational device **2** further includes an inner lid **46** having an opening **462**

through which engaging portion **244** of handle **24** extends. A bend **466** is formed on an inner periphery of opening **462**. Inner lid **46** further includes a through-hole **464** above opening **462**. Inner lid **46** abuts protrusion **215** and supports **217**, and fasteners **468** extend through inner lid **46** into screw holes in supports **217**. Two of mounting posts **220** extend through inner lid **46** into screw holes in protrusion **215**. Thus, inner lid **46** is fixed in space **200** of cover **20**. The other end of pivotal portion **410** is pivotably received in through-hole **464** of inner lid **46** to support stable rotation of driving member **40**.

According to the form shown, outer operational device **2** further includes a returning device **28** having a body **296** with a non-circular outer periphery. Body **296** includes a lobe **300** on a lower end thereof and having rectangular cross sections. Lobe **300** is received in groove **216** of cover **20** to prevent rotation of body **296**. Body **296** further includes a compartment **298** in a side thereof. Compartment **298** forms an engaging groove **302** in lobe **300**. A bottom wall defining compartment **298** includes a pivot hole **308**. Two limiting blocks **304** are formed on the side of body **296** along a periphery of pivot hole **308**. Each limiting block **304** includes an end **306**. Furthermore, each limiting block **304** has a height to the side of body **296** smaller than or equal to a depth of compartment **298**. A housing **282** slightly larger than body **296** is mounted to the side of body **296** to cover compartment **298**. Housing **282** includes an axial hole **284** aligned with pivot hole **308**.

According to the form shown, returning device **28** further includes a substantially cylindrical rotatable member **280** having a rib **288** on an intermediate portion of an outer periphery thereof. Two pivotal sections **290** are formed on opposite sides of rib **288**. Also formed on the outer periphery of rotatable member **280** are first and second blocks **286** adjacent two ends of rib **288**. A slit **294** is formed between rib **288** and first block **286**. Rotatable member **280** further includes a non-circular hole **292** through which engaging portion **244** of handle **24** extends. Pivotal sections **290** are respectively and pivotably received in pivot hole **308** of body **296** and axial hole **284** of housing **282** with blocks **286** located between limiting blocks **304**. The spacing between limiting blocks **304** and blocks **286** limits rotation of rotatable member **280**.

According to the form shown, returning device **28** further includes an elastic element **312** in the form of a spiral spring having a spiral section, a first tang **314** outside of the spiral section, and a second tang **316** inside of the spiral section. The spiral section of elastic element **312** is mounted around limiting blocks **304** and are located in compartment **298**, with first tang **314** abutting against a wall of engaging groove **302** and with second tang **316** received in slit **294** of rotatable member **280** and abutting against a side of first block **286** adjacent to slit **294**. Thus, first tang **314** is fixed to body **296**, and second tang **316** is fixed in slit **294**. Rotatable member **280** is biased by elastic element **312** such that each of first and second blocks **286** presses against end **306** of one of limiting blocks **304**. In this state, stem **240** of handle **24** is in a horizontal state with rotatable member **280** in its initial position. When rotatable member **280** is rotated, first block **286** adjacent to slit **294** presses against second tang **316** of elastic element **312** to store the restoring force.

In the form shown, rotatable member **280** of returning device **28** operates in a single direction according to the moving direction of unlocking member **148** and push rod **144**. Specifically, rotatable member **280** can only rotate jointly with unlocking member **148** in the counterclockwise direction in FIG. **3**. Clockwise rotation of rotatable member **280** is stopped by one of limiting blocks **304**.

Returning device **28** is received in opening **462** of inner lid **46** and abuts against bend **466**. Engaging portion **244** of handle **24** extends through non-circular hole **292** of rotatable member **280**. A fastener **250** is threadedly engaged in a screw hole in an end face of engaging portion **244** and includes a head abutting against rotatable member **280**, such that returning device **28** can not move along engaging portion **244**. Namely, movement of returning device **28** along a rotating axis about which rotatable member **280** rotates is prevented. Thus, follower **38** and actuating member **36** are retained in place. Due to non-circular coupling between engaging portion **244** and rotatable member **280**, elastic element **312** is twisted by rotatable member **280** when handle **24** is rotated. When handle **24** is released, elastic element **312** returns rotatable member **280** to its initial position and returns handle **24** to its initial, horizontal position. Limiting blocks **304** limit rotational movement of handle **24** to be smaller than 45° in either direction. According to the form shown, handle **24** can rotate 40° in a counterclockwise direction.

According to the form shown, locking mechanism **3** includes an outer cylinder **26** including a cylindrical outer cylinder body **264** having a flange **262** on an end thereof. An end of an outer periphery of outer cylinder body **264** includes a threaded portion **266**. An axial bore **261** extends from an end face of the other end of outer cylinder body **264** and has a central axis parallel to but spaced from a longitudinal axis of outer cylinder body **264**. The central axis of axial bore **261** is parallel to first axis X in the form shown. The outer periphery of outer cylinder body **264** further includes two diametrically opposed V-shaped positioning grooves **268**. A receiving groove **265** is defined in the outer periphery of outer cylinder body **264**, is spaced from axial bore **261**, and extends in a direction parallel to the central axis of axial bore **261**. Receiving groove **265** is spaced from each positioning groove **268** by 90°. A plurality of upper tumbler pin holes **263** extends along second axis Y to axial bore **261**. Upper tumbler pin holes **263** are spaced from each other along first axis X.

Locking mechanism **3** further includes an outer lock core **270** received in outer cylinder body **264** and having an enlarged head **271** on an end thereof. A tail **279** is provided at the other end of outer lock core **270** and has an outer diameter smaller than the outer diameter of enlarged head **271**. A keyway **275** extends from enlarged head **271** to tail **279**. Outer lock core **274** further includes a plurality of lower tumbler pin holes **274** spaced from each other along first axis X and formed in an outer periphery of outer lock core **270**. Each lower tumbler pin hole **274** extends from the outer periphery of outer lock core **270** to keyway **275**. Two screw holes **273** are formed in an end face of the other end of outer lock core **270** and are located on opposite sides of tail **279**. Outer lock core **270** is rotatably received in axial bore **261** of outer cylinder body **264**, with tail **279** located outside of axial bore **261** and with enlarged head **271** abutting an end face of outer cylinder body **264** in which an end of axial bore **261** is located. Each lower tumbler pin hole **274** is aligned with one of the upper tumbler pin holes **263**.

Outer cylinder **26** is received in compartment **206** of cover **20** with flange **262** abutting a bottom wall of compartment **206**. Outer cylinder body **264** extends through opening **208** of cover **20** and second hole **104** of door **10** into mounting hole **105** of door **100**. Threaded portion **266** is received in case **122** and engages with one of mounting holes **122**A. Each positioning groove **268** engages with one of two protrusions **121** of lock **12**.

Locking mechanism **3** further includes an actuating block **755** engaged with tail **279** of outer lock core **270**. Specifically, actuating block **755** includes a base **757**. A lug **759** extends radially outward from an outer periphery of base **757**. Two fasteners **269** extend through base **757** and engage with screw

holes **273** of outer lock core **270**. Thus, actuating block **755** and outer lock core **270** rotate jointly about the central axis of axial bore **261**. Actuating block **755** prevents outer lock core **270** from disengaging from outer cylinder **26** along the center axis of axial bore **261**.

According to the form shown, a lower tumbler pin **251**, an upper tumbler pin **252**, and a spring **253** are received in each pair of aligned upper and lower tumbler pin holes **263** and **274**. A lid **254** is mounted in receiving groove **265** to prevent disengagement of lower tumbler pins **251**, upper tumbler pins **252**, and springs **253**. Each spring **253** includes a first end pressing against lid **254** and a second end pressing against a corresponding upper tumbler pin **252**, assuring that the corresponding upper tumbler pin **252** presses against a corresponding lower tumbler pin **251**, and assuring that the corresponding lower tumbler pin **251** extends into a corresponding lower tumbler pin hole **274**. Thus, outer lock core **270** can not be rotated without inserting a key into axial bore **261** and rotating the key. Upper tumbler pins **252** can have different lengths, and lower tumbler pins **251** can have different lengths, providing various combinations for keys.

According to the form shown, locking assembly **3** further includes an inner cylinder **50** including an inner cylinder body **52** having front and rear end faces **521** and **523** and an axial bore **520** extending from front end face **521** through rear end face **521**. Axial bore **520** includes a central axis parallel to and spaced from a longitudinal axis of inner cylinder body **52**. A flange **524** is formed around front end face **521**. Two screw holes **525** are defined in rear end face **523**. Inner cylinder body **52** further includes a receiving groove **528** in an outer periphery thereof and parallel to but spaced from axial bore **520**. A plurality of upper tumbler pin holes **526** extends from a bottom wall of receiving groove **528** along second axis Y into axial bore **520**. Upper tumbler pin holes **526** are spaced from each other along first axis X.

An inner lock core **54** is received in axial bore **520** of inner cylinder body **52** and includes an enlarged head **540** on an end thereof. A tail **542** is provided at the other end of inner lock core **540** and has an outer diameter smaller than the outer diameter of enlarged head **540**. Tail **542** has an annular groove **546** in an outer periphery thereof. A groove **543** extends from an end face of tail **542** toward but spaced from enlarged head **540** along first axis X and intersects with annular groove **546**. Inner lock core **54** further includes a keyway **544** extending from enlarged head **540** through tail **542**. Inner lock core **54** further includes a plurality of lower tumbler pin holes **548** spaced from each other along first axis X and formed in an outer periphery of inner lock core **54**. Each lower tumbler pin hole **548** extends from the outer periphery of inner lock core **540** to keyway **548**. Inner lock core **54** is rotatably received in axial bore **520** of inner cylinder body **52**, with tail **542** located outside of axial bore **520** and with enlarged head **540** abutting front end face **521** of inner cylinder body **520**. Each lower tumbler pin hole **548** is aligned with one of the upper tumbler pin holes **526**.

According to the form shown, a lower tumbler pin **560**, an upper tumbler pin **562**, and a spring **564** are received in each pair of aligned upper and lower tumbler pin holes **526** and **548**. A lid **566** is mounted in receiving groove **528** to prevent disengagement of lower tumbler pins **560**, upper tumbler pins **562**, and springs **564**. Each spring **564** includes a first end pressing against lid **566** and a second end pressing against a corresponding upper tumbler pin **562**, assuring that the corresponding upper tumbler pin **562** presses against a corresponding lower tumbler pin **560**, and assuring that the corresponding lower tumbler pin **560** extends into a corresponding lower tumbler pin hole **548**. Thus, outer lock core **54** can not be rotated without inserting a key into axial bore **520** and rotating the key. Upper tumbler pins **562** can have different lengths, and lower tumbler pins **560** can have different lengths, providing various combinations for keys.

According to the form shown, locking assembly **3** further includes a tongue **58** having front and rear ends **582** and **584** spaced from each other in a longitudinal direction parallel to first axis X. Rear end **584** includes an ear **586** on each of two sides thereof. Each ear **586** has a width slightly smaller than a diameter of tail **542** of inner lock core **54**. Tongue **58** includes an upper face with a plurality of slots **588** between front and rear ends **582** and **584** and spaced from each other at regular intervals. Ears **586** of rear end **584** are received in groove **543** of inner lock core **54**. A positioning ring **550** is mounted around inner lock core **54** between groove **543** and lower tumbler pin holes **548**. A retainer ring **552** is engaged in annular groove **546** of inner lock core **54** to position positioning ring **550** between retainer ring **552** and rear end face **523** of inner cylinder body **52**. Positioning ring **550** prevents ears **586** of tongue **58** from extending out of groove **543** of inner lock core **54**. Retainer ring **552** retains ears **586** of tongue **58** in a position behind annular groove **546**, preventing tongue **58** from disengaging from groove **543** of inner lock core **54**. Thus, tongue **58** is reliably fixed to inner lock core **54** (FIG. **11**).

According to the form shown, locking mechanism **3** further includes an inner cylinder seat **613** receiving inner cylinder **50**. Inner cylinder seat **613** includes a first end face **615** and a second end face **617** spaced from first end face **615** along first axis X. Inner cylinder seat **613** further includes a peripheral wall **619** extending from first end face **615** through second end face **617** along first axis X. Inner cylinder seat **613** further includes a first compartment **630** extending from first end face **615** through second end face **617**. A shield **655** is provided on peripheral wall **619** and defines a second compartment **657**. Shield **655** includes a wall adjacent to first end face **615**. A window **659** is defined in the wall of shield **655**. Window **659** extends to and is in communication with second compartment **657**. Inner cylinder seat **613** further includes a pivotal portion **631** extending from second end face **617** away from first end face **615** along first axis X. Pivotal portion **631** includes a third end face **633**, with the second end face **617** located between first end face **615** and third end face **633** along first axis X. Pivotal portion **631** further includes a pivotal hole **635** extending from third end face **633** to first compartment **630** along first axis X. Pivotal portion **631** further includes a notch **638** formed in an upper end of pivotal portion **631** and extending to pivotal hole **635**. An engagement hole **653** is defined in second end face **617**. Two screw holes **654** are defined in second end face **617** and are located on two sides of notch **638**, with a longitudinal axis of pivotal hole **635** located between screw holes **654**. Flange **524** of inner cylinder body **52** abuts first end face **615** of inner cylinder seat **613**. Tongue **58** extends outside of third end face **633** of inner cylinder seat **613**.

With reference to FIGS. **1** and **3**, inner cylinder **50** is fixed by a locking plate **151** to an upper portion of base **180**. According to the form shown, locking plate **151** is mounted to the other side of base **180** facing door **10**. Specifically, locking plate **151** includes two holes **154** aligned with screw holes **654** of inner cylinder seat **613**. Locking plate **151** further includes a through-hole **159** between holes **154**. Furthermore, locking plate **151** includes a plurality of protrusions **156** in four corners of locking plate **151**. Protrusions **156** are inserted into four corners of base **180** to position locking plate **151** (FIG. **5**). Second end face **617** of inner cylinder seat **613** abuts a surface of base **180**. Two screws **158** extend through holes

154 of locking plate 151 and screw holes 654 of inner cylinder seat 613 into screw holes 525 of inner cylinder body 52. Thus, inner cylinder 50 and locking plate 151 are fixed to base 180, with tongue 58 extending through through-hole 159 of locking plate 151.

According to the form shown, locking mechanism 3 further includes an indicator member 660 pivotably mounted to inner cylinder seat 613. Indicator member 660 includes a pivotal portion 672 having a first section 673 and a second section 676 spaced from first section 673 along first axis X. Second section 676 is substantially U-shaped and includes an engagement groove 680 in an end face thereof. Pivotal portion 672 further includes an engagement hole 677 extending from an end face of first section 673 toward but spaced from an end face of second section 676 along first axis X. Engagement hole 677 has non-circular cross sections. Indicator member 660 further includes an arm 679 formed on an outer periphery of pivotal portion 672. An indicator 691 is formed on a distal end of arm 679 and includes a first portion 693 indicating locking member 160 is in the unlocking position and a second portion 695 indicating locking member 160 is in the locking position. First section 673 of indicator member 660 is pivotably received in pivotal hole 635 of inner cylinder seat 613. Engagement groove 680 of second section 676 of indicator member 660 is engaged with an engagement end 774 of an actuating plate 771 via a pin 678. Actuating plate 771 further includes an actuating end 773 located outside of second section 676 of indicator member 660. Pivotal movement of indicator member 660 between two positions causes selective alignment of first portion 693 or second portion 695 of indicator 691 with window 659.

According to the form shown, a spring 739 is mounted between indicator member 660 and inner cylinder seat 613. Spring 739 includes a first tang 751 and a second tang 753. First tang 751 of spring 739 is engaged in engagement hole 653 of inner cylinder seat 613. Second tang 753 of spring 739 presses against arm 679 of indicator member 660. Spring 739 biases indicator member 660 to a position in which first portion 693 or second portion 695 of indicator member 660 is aligned with window 659. A limiting plate 697 is screwed to third end face 633 of inner cylinder seat 613 and includes a through-hole 699 aligned with pivotal hole 635 of inner cylinder seat 613. Second section 675 of indicator member 660 extends through through-hole 699 of limiting plate 697, preventing indicator member 660 from moving along first axis X.

According to the form shown, locking mechanism 3 further includes a support plate 775 mounted in mounting hole 122A and a setting member 791 pivotably connected to support plate 775 and located in case 122. Support plate 775 includes two diametrically opposed V-shaped notches 777 in an outer periphery thereof. Each notch 777 engages with one of protrusions 121. Support plate 775 further includes a pivotal hole 779. Setting member 791 is pivotably mounted in pivotal hole 779 of support plate 775 and includes a hole 795 extending from a side thereof through the other side thereof. A plurality of inner protrusions 797 is formed on an inner periphery of hole 795. Setting member 791 further includes a transmission section 793 on an outer periphery thereof. In the form shown, transmission section 793 include two teeth. A retaining ring 799 is mounted around the outer periphery of setting member 791, allowing relative pivotal movement between actuating plate 771 and support plate 775. Actuating end 773 of actuating plate 771 extends into hole 795 of setting member 791, with transmission section 793 of setting member 791 meshed with toothed portion 129D of transmission block 129, allowing joint pivotal movement of setting member 791 and transmission block 129.

During installation of outer operational device 2, driving rod 412 extends through hole 150 of unlocking member 148 of lock 12, as mentioned above. Thus, even if outer operational device 2 is not aligned with lock 12 during installation, adjustment of positions of lock 12 and inner and outer operational devices 18 and 2 is not required, allowing convenient on-site installation.

Now that the basic construction of the panic exit door lock has been explained, the operation and some of the advantages of the panic exit door lock can be set forth and appreciated. In particular, for the sake of explanation, it will be assumed that handle 24 is in a horizontal position (FIGS. 2-5). Due to limitation by returning device 28, handle 24 can only pivot in the counterclockwise direction of FIG. 4. A locking function of locking mechanism 3 has not been set yet. First portion 693 of indicator 691 of indicator member 660 is aligned with window 659 of inner cylinder seat 613 (FIG. 5). Thus, a user can be aware of an unlocking state of locking mechanism 3 through window 659.

When handle 24 is pivoted in the counterclockwise direction, follower 38 and rotatable member 280 of returning device 28 rotate jointly with engaging portion 244, such that first block 286 moves second tang 316 of elastic element 312 and such that elastic element 312 is twisted to store potential energy for returning purposes. Actuating member 36 is rotated by teeth 380 of follower 38. Links 34 are driven by axles 368 of actuating member 36 to move in a reverse direction. One of links 34 moves upward to push first wing 402, and the other link 34 moves downward to push second wing 404, such that driving member 40 rotates in the counterclockwise direction. At the same time, driving rod 412 rotates jointly with driving member 40. Since stop 162 of locking member 160 is aligned with groove 155 of unlocking member 148, when front end 414 of driving rod 412 actuates unlocking member 148 of lock 12 to move in the counterclockwise direction, first arm 153 drives push rod 144 to rotate, and stop 162 enters groove 155 of unlocking member 148. Furthermore, end 146 of push rod 144 pushes retractor 120 to move in a leftward direction in FIG. 4 to compress spring 125. When rotatable member 280 rotates to an extreme position in which one of first and second blocks 286 abuts against end 306 of one of limiting blocks 304, latch 124 is moved from the latching position to the unlatching position (FIG. 15).

When handle 24 is released after unlatching, second tang 316 of elastic element 312 returns rotatable member 280 from the extreme position back to the initial position, which, in turn, rotates handle 24 in a clockwise direction in FIG. 15 to its initial position via engaging portion 244. Thus, stem 240 of handle 24 returns to its horizontal position, and first and second ends 360 and 362 of actuating member 36 are at the same level. Furthermore, latch 124 is moved by spring 125 to the latching position. At the same time, links 34 move first wing 402 and second wing 404 in opposite directions until first and second wings 402 and 404 are at the same level.

It can be appreciated that locking mechanism 3 provides a locking function through setting from outer operational device 2 or inner operational device 18, such that latch 124 of lock 12 can not be moved to the unlatching position by operating outer operational device 2. Specifically, actuating block 755 of outer cylinder 26 is initially located above transmission block 129 of lock 12 (FIG. 4). When it is desired to set the locking function by outer operational device 2, a key 260 is inserted into outer lock core 270 in outer cylinder 26 to unlock and rotate outer lock core 270, such that lug 759 of actuating

block **755** pivots in the clockwise direction in FIG. **4** to press against second end **129**C of transmission block **129**. Transmission block **129** moves in the counterclockwise direction in FIG. **4**, which, in turn, causes counterclockwise movement of rocker **166**. End **169** of rocker **166** slides in guide slot **164** of locking member **160** and moves locking member **160** along second axis Y, such that stop **162** of locking member **160** is moved from its unlocking position (in which stop **162** is aligned with groove **155** of push arm **153**) downward away from groove **155** to its locking position behind push arm **153** along second axis Y (FIGS. **17** and **18**).

When transmission block **129** pivots, toothed portion **129**D of transmission block **129** drives setting member **791** to pivot, causing actuating plate **771** and indicator member **660** to pivot to a position in which second portion **695** of indicator member **660** is aligned with window **659** of inner cylinder seat **613** (FIG. **18**). When locking member **160** is in its locking position (FIG. **17**), stop **162** abuts a face of push arm **153**, such that movement of push arm **153** of unlocking member **148** is stopped by stop **162** when handle **24** is rotated in the counterclockwise direction. Namely, unlocking door **10** by rotating handle **24** is not allowed. A user at the inner side **10**A of door **10** can be aware that the locking function of lock **12** is set by indication of second portion **695** via window **659**. A user at the outer side **10**B can be aware that the locking function of lock **12** is set by trying to rotate handle **24** but finding that handle **24** can not be rotated.

When it is desired to remove the locking function by outer operational device **2**, key **260** is inserted into outer lock core **270** in outer cylinder **26** to rotate outer lock core **270** in a reverse direction, such that lug **759** of actuating block **755** presses against first end **129**B of transmission block **129**, casing pivotal movement of transmission block **129** and rocker **166** in the clockwise direction and moving locking member **160** from the locking position to the unlocking position. Thus, latch **124** can be moved from the latching position to the unlatching position by rotating handle **24**.

On the other hand, when it is desired to set the locking function by inner operational device **18**, key **260** is inserted into inner lock core **54** in inner cylinder **50** to unlock and rotate inner lock core **54**. Tongue **58** moves indicator member **660** to a position in which second portion **695** of indicator **691** is aligned with window **659** of inner cylinder seat **613**. Furthermore, actuating plate **771** presses against and drives setting member **791** to pivot, moving locking member **160** from the unlocking position to the locking position, thereby setting the locking function of lock **12**. Thus, handle **24** can not be rotated. In this state, unlatching can not be achieved through operation of handle **24**. The user at inner side **10**A of door **10** can be aware that locking mechanism **3** is in the locking state through window **659**, with indicator member **660** indicating that the locking function of lock **12** is set.

When it is desired to remove the locking setting by inner operational device **18**, key **260** is inserted into inner lock core **54** in inner cylinder **50** to unlock and rotate inner lock core **54** in the counterclockwise direction. This causes clockwise pivotal movement of setting member **791** and rocker **166** and moves the locking member **160** from the locking position to the unlocking position such that latch **124** can be moved from the latching position to the unlatching position.

Furthermore, outer operational device **2** allows easy replacement of handle **24** such that it can be mounted to either a right-handed door or a left-handed door through simple operation. Specifically, door **10** shown in FIGS. **2** and **3** is a right-handed door, and handle **24** is rotated counterclockwise for unlatching purposes. With reference to FIG. **9**, when it is desired to mount outer operational device **2** on a left-handed door, fastener **250** is firstly removed. Returning device **28** and follower **38** are then removed from engaging portion **244** of handle **24**. Handle **24** is rotated 180° (FIG. **19**). Note that other elements are not actuated, because actuating member **36** rotates freely on handle **24**. After mounting follower **38** on engaging portion **244** of handle **24**, returning device **28** is rotated 180° about an axis **310** (FIG. **14**) and then mounted back onto engaging portion **244** of handle **24**, with housing **282** located behind body **296** (housing **282** is in front of body **296** when utilized with a right-handed door). Then, fastener **250** is screwed into engaging portion **244** to fix returning device **28** in place. Thus, outer operational device **2** is mounted to a left-handed door. The operational procedure is simple and can be rapidly carried out on the site.

Since follower **38** acts as a medium for driving actuating member **36** when handle **24** is rotated, teeth **380** of follower **38** break when an excessive force is applied to handle **24**. Thus, handle **24** rotates freely to avoid damage to outer operational device **2** and other components of outer operational device **2**.

Note that when indicator member **660** pivots between two positions while switching locking mechanism **3** between the locking state and the unlocking state, the locking state or unlocking state of locking mechanism **3** can be viewed through window **659** of inner cylinder seat **613**. Thus, the user can know whether the locking function of the lock **12** is set by looking through window **659** of locking mechanism **3**, overcoming the disadvantages of the prior art.

Now that the basic teachings of the present invention have been explained, many extensions and variations will be obvious to one having ordinary skill in the art. For example, locking mechanism **3** does not have to include actuating plate **771**, and second section **676** of indicator member **660** is directly coupled with setting member **791**. Alternatively, engagement hole **677** of indicator member **660** can extend through an end face of second section **676** such that tongue **58** can extend through indicator member **660** to engage with setting member **791**. All of these provisions allow pivotal movement of indicator member **660** and setting member **791** by rotating inner lock core **54**. Furthermore, transmission block **129** and rocker **166** can be integrally formed as a monolithic piece. Specifically, an extension arm can extend from a portion between pivotal portion **129**A and second end **129**C of transmission block **129** to locking member **160** such that setting member **791** can be driven by rotation of inner lock core **54** to move rocker **166**.

Thus since the invention disclosed herein may be embodied in other specific forms without departing from the spirit or general characteristics thereof, some of which forms have been indicated, the embodiments described herein are to be considered in all respects illustrative and not restrictive. The scope of the invention is to be indicated by the appended claims, rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are intended to be embraced therein.

The invention claimed is:

1. A panic exit door lock comprising:

a cover (**20**) adapted to be mounted to an outer side (**10**B) of a door (**10**), with the cover (**20**) defining a space (**200**);

a handle (**24**) rotatably mounted to an outer side of the cover (**20**);

a driving member (**40**) mounted in the space (**200**) of the cover (**20**), with the driving member (**40**) operably connected to the handle (**24**), and with the driving member (**40**) and the handle (**24**) pivoting jointly;

a case (**122**) adapted to be mounted in a mounting hole (**105**) of the door (**10**);

an unlocking member (**148**) pivotably mounted in the case (**122**), with the unlocking member (**148**) and the driving member (**40**) pivoting jointly, and with the unlocking member (**148**) pivoting when the handle (**24**) rotates;

a latch (**124**) slideably received in the case (**122**) and operably connected to the unlocking member (**148**), with the latch (**124**) movable between a latching position outside of the case (**122**) and an unlatching position inside of case (**122**) when the unlatching member (**148**) pivots;

a locking member (**160**) slideably mounted in the case (**122**), with the locking member (**160**) movable between a locking position preventing pivotal movement of the unlocking member (**148**) and an unlocking position allowing pivotal movement of the unlocking member (**148**);

a rocker (**166**) pivotably mounted in the case (**122**) and operably connected to the locking member (**148**), with the locking member (**160**) moving between the locking position and the unlocking position when the rocker (**166**) pivots;

a base (**180**) adapted to be mounted to an inner side (**10**A) of the door (**10**) opposite to the outer side (**10**B) of the door (**10**);

a driving rod (**184**) pivotably mounted in the base (**180**), with the driving rod (**184**) operably connected to the latch (**124**), and with the latch (**124**) moving from the locking position to the unlocking position when the driving rod (**184**) pivots;

an operative member (**182**) slideably mounted to the base (**180**) and operably connected to the driving rod (**184**), with the driving rod (**184**) pivots when the operative member (**182**) is moved;

an outer cylinder (**26**) including an outer cylinder body (**264**) mounted to the cover (**20**) and an outer lock core (**270**) rotatably received in the outer cylinder body (**264**);

an actuating block (**755**) fixed to the outer lock core (**270**), with the actuating block (**755**) and the outer lock core (**270**) pivoting jointly, and with the actuating block (**755**) operably connected to the rocker (**166**);

an inner cylinder seat (**613**) fixed to the base (**130**), with the inner cylinder seat (**613**) including a peripheral wall (**619**) defining a first compartment (**630**), with a shield (**655**) formed on the peripheral wall (**619**) and defining a second compartment (**657**), and with the shield (**655**) further including a window (**659**) in communication with the second compartment (**657**);

an inner cylinder (**50**) received in the first compartment (**630**), with the inner cylinder (**50**) including an inner cylinder body (**52**) and an inner lock core (**54**) rotatably received in the inner cylinder body (**52**);

an indicator member (**660**) including a pivotal portion (**672**) pivotably connected to the inner cylinder seat (**613**), with the indicator member (**660**) further including an arm (**679**) extending from the pivotal portion (**672**), with an indicator (**691**) provided on the arm (**679**) and having a first portion (**693**) indicating the unlocking member (**160**) is in the unlocking position and a second portion (**695**) indicating the unlocking member (**160**) is in the locking position, and with one of the first and second portions (**693**, **695**) selectively aligned with the window (**659**);

a tongue (**58**) fixed to the inner lock core (**54**), with the tongue (**58**) and the inner lock core (**54**) pivoting jointly, with the tongue (**58**) extending through the pivotal portion (**672**) of the indicator member (**660**), and with the tongue (**58**) and the indicator (**660**) pivoting jointly; and

a setting member (**791**) pivotably mounted in the case (**122**) and connected to the rocker (**166**), with the setting member (**791**) and the rocker (**166**) moving jointly, with the setting member (**791**) and the indicator member (**660**) moving jointly, and with the setting member (**791**) and the rocker (**166**) pivoting jointly when the inner lock core (**54**) pivots,

wherein when the inner lock core (**54**) is rotated in a direction, the indicator member (**160**) is moved to a position in which the first portion (**693**) or the second portion (**695**) is aligned with the window (**659**) of the inner cylinder seat (**613**),

wherein when the outer lock core (**270**) is rotated in a direction, the actuating block (**755**) pivots to drive the setting member (**791**) to pivot via the rocker (**166**), causing one of the first and second portions (**693**, **695**) of the indicator member (**660**) to align with the window (**659**) of the inner cylinder seat (**613**),

wherein when the first portion (**693**) of the indicator member (**660**) is aligned with the window (**659**) of the inner cylinder seat (**613**), the locking member (**160**) is in the locking position, and the unlocking member (**148**) and the latch (**124**) are not moved if the handle (**24**) is rotated, and

wherein when the second portion (**695**) of the indicator member (**660**) is aligned with the window (**659**) of the inner cylinder seat (**613**), the unlocking member (**160**) is in the unlocking position, and the unlocking member (**148**) is moved to move the latch (**124**) from the latching position to the unlatching position if the handle (**24**) is rotated.

2. The panic exit door lock as claimed in claim **1**, with the inner lock cylinder (**613**) further including a first end face (**615**) and a second end face (**617**) spaced from the first end face (**615**), with the first compartment (**630**) extending from the first end face (**615**) through the second end face (**617**), with the inner cylinder seat (**613**) further including a pivotal portion (**631**) extending from the second end face (**617**), with the pivotal portion (**631**) including a third end face (**633**) and a pivotal hole (**635**) extending from the third end face (**633**) to the first compartment (**630**) along the first axis (X), with the pivotal portion (**631**) further including a notch (**638**), with the pivotal portion (**672**) of the indicator member (**660**) pivotably received in the pivotal hole (**635**) of the inner cylinder seat (**613**), and with the arm (**679**) extending through the notch (**638**) into the second compartment (**657**).

3. The outer operational device as claimed in claim **1**, with the pivotal portion (**672**) of the indicative member (**660**) further including a first section (**673**) pivotably connected in the pivotal hole (**635**) of the inner cylinder seat (**613**), with the pivotal portion (**672**) of the indicative member (**660**) further including and a second section (**676**) having an engagement groove (**680**), with the setting member (**791**) including a hole (**795**), with an inner protrusion (**797**) formed on an inner periphery of the hole (**795**) of the setting member (**791**), with the outer operational device further comprising:

an actuating plate (**771**) including an engagement end (**774**) engaged with the engagement groove (**680**) of the indicator member (**660**), with the actuating plate (**771**) further including an actuating end (**773**) engaged with the hole (**795**) of the setting member (**791**),

wherein when the inner lock core (**54**) rotates, the indicator member (**660**) presses against the inner protrusion (**797**) via the actuating plate (**771**) to pivot the setting member (**791**).

4. The outer operational device as claimed in claim **1**, further comprising:

a transmission member (**129**) pivotably mounted in the case (**122**), with the transmission member (**129**) including a pivotal portion (**129**A) pivotably connected to the rocker (**166**), with the transmission member (**129**) further including first and second ends (**129**B, **129**C) and a toothed portion (**129**D) located between the first and second ends (**129**B, **129**C) of the transmission member (**129**) and opposite to the pivotal portion (**129**A) of the transmission member (**129**), with the first end of the transmission member (**129**) fixed to the rocker (**166**), with the rocker (**166**) and the transmission block (**129**) pivoting jointly when the setting member (**791**) pivots,

with the setting member (**791**) further including a transmission section (**793**) meshed with the toothed portion (**129**D) of the transmission block (**129**),

wherein when the outer lock core (**272**) pivots and drives the actuating block (**755**) to pivot, the actuating block (**755**) presses the first end (**129**B) or the second end (**129**C) of the transmission block (**129**) to drive the transmission block (**129**) to pivot,

wherein when the actuating block (**755**) presses against the first end (**129**B) of the transmission block (**129**), the locking member (**16**) moves from the locking position to the unlocking position, and

wherein when the actuating block (**755**) presses against the second end (**129**C) of the transmission block (**129**), the locking member (**16**) moves from the unlocking position to the locking position.

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